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The Influence of Multimedia-Based Parent and Adolescent Interventions on Substance
Abuse among Poor Youth

Alfred J. Ozanian

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requirements for the degree of
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in the Graduate School of Arts and Sciences

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ABSTRACT

The Influence of Multimedia-Based Parent and Adolescent Interventions on Substance Abuse Among Poor Youth

Alfred J. Ozanian

CONTEXT: Several aspects of an adolescent's life have been shown to be influential in predicting their substance use. However, reaching specific areas of an adolescent's life has been hampered by various environmental and cultural barriers. Today, it may be possible to reach an adolescent, and those around them, with multi-media technologies.

OBJECTIVE: This study examines the effectiveness of using multimedia-based interactive technologies coupled with conventional interventions (direct service) to prevent adolescent substance use. Computer Assisted Skills Training (CAST) interventions with youth, and video and face-to-face interventions with parents, were used to disseminate a science-based substance use prevention program. The enhancement of individual, peer, family, and school protective factors, and the reduction in the incidence of adolescent substance use among low income African American, Latino, and White Adolescents was evaluated.

SETTING: Study participants were predominantly 9-13 years old from low-income, high-risk families that utilized community service organizations in the greater New York City area. Sites included 17 Boys and Girls Clubs of America, 6 Police Athletic Leagues, 9 United Neighborhood House organizations, 5 Independent Service Agencies, and 1 YMCA.

DESIGN: Using an experimental design, study sites were stratified by race then randomly assigned into one of three groups: 1) no intervention control group; 2) CAST only; and 3) parent-CAST group.

RESULTS: Adolescents in the parent-CAST group demonstrated improved protective factors and reduced entry level and middle risk drug use compared to the other two study groups. The control group had fewest protective factors and greatest entry level and middle risk substance use. Dose analysis of CAST intervention and parent training revealed the CAST intervention reduced the initiation of substance use. There is anecdotal support that the CAST and parent interventions collectively provided adolescents with greater protection from substance use. CONCLUSIONS: Culturally sensitive and age appropriate CAST interventions coupled with a fairly low intensity, but targeted parent intervention, can enhance individual, peer, and family protective factors culminating in a reduced incidence of adolescent substance use.

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During this journey I have on occasion lost perspective. My children [REDACTED], [REDACTED], and [REDACTED] have provided a daily dose of perspective. At the end of the day, a loving hug, brief discussion about school, restful meal, homework, and quiet book has soothed most worries. They have provided me with more pleasure, wisdom, and perspective than I could ever hope to pass on.

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Last but not least I would like to thank God. I have learned more through the challenges He has placed before me, than from the gift of any easy path. What a blessed country we live in where a young high school drop-out can go on to achieve a Doctorate degree from Columbia University, and acquire the gift of curiosity. I will carry my gratitude with me as I depart. I will attempt to invest in others as faithfully as those who have invested in me.

DEDICATION

To my parents [REDACTED], wife
[REDACTED] who
have inspired me to complete this journey.

CHAPTER 1

Introduction

A great deal of attention has been focused on adolescent substance use and abuse among American adolescents. In part this has been due to the demonstrated relationship between substance use and many undesirable social behaviors and their consequences. Adolescent substance use has been shown to be related to high-risk sexual behaviors, delinquency and crime, affective disorders, child abuse and neglect, increased likelihood of accidental injury or death, and unemployment (Hawkins, Catalano, & Miller, 1992). There has also been a strong relationship shown between multiple risk factors for adolescent substance use and multiple problem behaviors such as high-risk sexual behavior, delinquency, and impulsivity (Jessor, 1991).

Adolescent substance use does not occur in a vacuum, but in diverse social contexts. Moreover, factors that contribute to adolescent substance use vary by individual. During the past several decades social science and medical research have attempted to understand these differences.

This chapter discusses the significance and relevance of this study for social work practice and provides an overview of the methodology utilized. A review of the literature is provided and organized in a manner consistent with the theoretical framework (Social Developmental Model). There are three areas included in the literature review that are not directly part of the theoretical framework: individual characteristics, race/ethnicity, and computer interventions. They were included because of their contextual significance to this study.

The Social Development Model (SDM) (Hawkins, 1999; Hawkins, Catalano, & Miller, 1992; Hawkins & Weis, 1985) and Balance Theory of Coordination (Litwak,

Meyer, & Hollister, 1977) is discussed and utilized as the theoretical framework for this study. This framework helped in the decision-making as to who, when, where, and what types of interventions could be utilized to reduce adolescent substance use.

Significance of the Study

Numerous sources of data have become available to help mental health professionals understand substance use and abuse prevalence trends among adolescents. There are three nationally representative surveys currently used to examine adolescent substance use prevalence rates: The National Household Survey on Drug Abuse (NHSDA), the Monitoring the Future (MTF) survey, and the Youth Risk Behavior Survey (YRBS). NHSDA is a household survey of the U.S. population ages 12 and older. The MTF and YRBS are school surveys. These surveys use self-report methods and multistage cluster probability design to select a representative sample of the population (Harrison, 2001). Beginning in 1972, the NHSDA is the oldest of the surveys and has undergone occasional revisions. The MTF survey began by measuring high school seniors in 1975 and was expanded to 8th and 10th graders in 1991. The YRBS has surveyed 9-12 graders since the late 1980's and has been conducted every year or two since (Harrison, 2001).

Adolescent substance use rates reported by the YRBS and MTF surveys tend to have similar findings. The NHSDA reports slightly lower prevalence rates for similar age and grade groupings. When trending the data between the MTF and NHSDA, they very closely resemble each other. There are some differences between the two surveys in reported rates of use, but these differences are not statistically remarkable (Harrison,

2001). Differences among the three surveys are probably the result of varying methodologies (Harrison, 2001).

Today, over half of 12th graders and one quarter of 8th graders have tried an illicit substance by the time they graduate high school (Monitoring the Future Study, 2002). Illicit substance use is defined as having used a drug without a physician's description (including marijuana). If inhalant use was included in the definition of an illicit substance, nearly one third of 8th graders have used an illicit substance by the time they are 12-14 years old (Monitoring the Future Study, 2002). In order to further provide a context for understanding adolescent substance use, a brief overview of the findings from the 2002 MTF survey is given. The discussion will be limited to 8th graders because they most closely resemble the age of the adolescents in this study. The overview will include lifetime use of cigarette, alcohol, marijuana, inhalant, LSD, crack cocaine, amphetamine, heroin, ecstasy, and rohypnol substance use.

The 2002 MTF study reveals that three in every ten (31%) eighth graders have tried cigarettes, with one in nine (11%) smoking regularly. Eighth grade cigarette smoking peaked in 1996 at 49.2% and has been on a steady decline since then. Cigarette smoking among adolescents continues in spite of efforts to deglamorize tobacco use.

Alcohol use remains extremely wide spread with nearly half of the eighth graders surveyed having tried alcohol. Eighth grade alcohol use was first measured in 1991 and that year was the peak of their reported use (70%). Alcohol prevalence has been steadily declining since 1991. Reductions in alcohol use are positive, but concerns remain as 21% of the eighth graders surveyed report having been drunk at least once.

The prevalence of marijuana use grew from 10.2% in 1991 to a peak of 23.1% in 1996. Marijuana has slowly but inconstantly declined since 1997, and in 2002 19.2% of respondents reported having used marijuana. However, eighth graders in 2002 report a rate nearly double of that initially reported in 1991.

Eighth graders have the greatest relative prevalence of inhalant use than either the 10th or 12th graders. From 1991 to 1995, the prevalence of inhalant use among 8th graders grew from 17.5% to 21.6%. Inhalant use has steadily declined among 8th graders from 1996 (21.2%) to 2002 (15.2%). However, eighth graders retained the greatest relative prevalence rate of inhalant use for every year since their inclusion in the survey in 1991.

LSD is the most widely used drug within the larger class of hallucinogens (Monitoring the Future Study, 2002). Eighth graders showed some increased LSD use between 1991 (2.7%) and 1996 (5.1%). However, between 1997 and 2002 there has been a steady decline from 4.7% to 2.5% respectively.

Crack cocaine use among eighth graders increased between 1991 (1.3%) and 1998 (3.2%). From 1992 to 2002, crack cocaine use slowly but steadily declined. However, the 2002 rate of 2.5% is nearly twice the prevalence rate than was first reported in 1991 and remains disconcerting.

Amphetamine use increased from 1991 (10.5%) to a peak of 13.5% in 1995. There has been a steady decrease in prevalence since 1996, with 8.7% of the 2002 eighth graders reporting amphetamine use. The 2002 prevalence rate represents a real reduction of nearly 2% since the 1991 report.

Heroin use among eighth graders began at a prevalence rate of 1.2% in 1991, peaked in 1996 at 2.4%, and has steadily declined to a rate of 1.6% in 2002. Heroin use has a relatively low prevalence rate in this group.

Ecstasy and Rohypnol use were added to the MTF survey in 1996. Ecstasy use among eighth graders in 1996 was 3.4%. Prevalence rates remained relatively unchanged until 2000 when it spiked to 4.3% and peaked in 2001 at 5.3%. The 2002 results reveal an Ecstasy prevalence rate of 4.3% for this group. The spike in Ecstasy use may well represent the cyclical trends found in substance use that are due to shifting attitudes towards 'in' drugs. Rohypnol began with a prevalence rate of 1.5% in 1996 and has relatively consistently declined since then. The 2002 MTF study reports Rohypnol use among eighth graders is less than 1%.

Substance use prevalence rates vary by age, race, and gender. As youth mature the percentage of them that have used drugs, alcohol, or cigarettes increases. For example, the MTF survey (2002) reports that the percentage of 8th graders that report having ever used illicit drugs (including marijuana) is 24.5% compared to 44.6% of 10 graders and 53% of 12th graders. The relative increase between grades represents the influence of maturity on substance use and is true for nearly every drug discussed in the MTF survey.

When examining drug use among White, Hispanic, and African American adolescents it has been found that African American adolescents have lower rates of use for most illicit substances than Whites. Overall, Hispanic youth have reported rates that fall between White and African American adolescents. However, Hispanics have the highest usage rate in their senior year of high school in the most dangerous drugs, heroin

with a needle, cocaine, and ice (methamphetamine). Eighth grade Hispanic adolescents have the highest percentage of substance use of the three major ethnic groups on nearly all classes of drugs. One possible explanation for the change in their ranking between 8th and 12th grade is that they have the highest school drop out among the three racial groups. Therefore Hispanic substance use may be under represented in more senior grades due to a sample selection bias.

Regarding gender differences, males are more likely to use most substances than females. This holds true with the exception of amphetamine use and tranquilizer use, which has switched ranking on a few occasions during the life of the study.

Shifts in specific prevalence rates among adolescents do not seem consistent with changes in attitude about the consequences of drug use. Changes in substance use among adolescents seem to represent shifts in drug choice preferences based on popular idealized drugs within their social circle. This leads to questions about whether interventions must always be drug specific or whether general prevention strategies can work. In order to consider the possibility that a universal program can have a generalized impact on adolescent substance use, one must rely on larger sociological structures related to substance use, as opposed to trying to 'guess' what the future drug of choice for the adolescent will be in order to target prevention efforts.

Researchers have attempted to understand how two individuals in similar circumstances can have different substance use outcomes: one going on to further substance abuse, while the other does not. This question has led to the development of theories that consider both risk and protective factors. Risk factors are defined as individual, family, school, and community characteristics that increase the likelihood that

an adolescent will become a substance abuser. Protective factors are defined as individual, family, school, and community characteristics that inhibit or mediate substance use behavior. For example, greater levels of commitment (bond) to prosocial individual, family, school, and community values that are contrary to substance use behavior would be considered protective. Conversely, lower levels of the same protective factors increase the likelihood of substance use (Hawkins, Catalano, & Miller, 1992). Therefore, risk and protective factors are concepts that fit both general prevention programs and targeted intervention models.

There has been a trend away from individual level interventions because of the modest gains they have had on adolescent substance use. Focusing solely on traditional individual level prevention strategies has been slow however. For example, the Drug Abuse Resistance Education (DARE) program, which began in 1983, has become increasingly more controversial due to the short-term and modest impact it has had on adolescent substance use (Perry, et al., 2000). DARE targets individual level change but does not provide specific skills or interventions for other environmental influences in an adolescent's life. In spite of the weak empirical support of DARE's effectiveness, it has remained one of the most widely implemented prevention programs in the United States. This is due in part to the program's simplicity, brevity, and low cost. In response to these criticisms DARE-PLUS (Play and Learning Under Supervision) began in 1998. It expanded the individual level DARE interventions to include parents, peers, and neighborhoods. There are presently no reported outcome data on this program.

Project Northland is a multi-million dollar, multi-year efficacy trial conducted in Minnesota. The program attempts to reduce adolescent substance use by targeting

individual, peer, family, and community factors known to be related to adolescent substance use risk (Perry, et al. 1996). Individual level interventions ranged from 4 to 8 sessions with varying deployment strategies based on the school grade of the child. Peer leaders were trained to conduct support groups. Parenting interventions consisted of 4 booklets mailed directly to the parents. Parents were instructed to complete the booklets with their children. Community interventions consisted of mobilizing community residents to support legislation requiring alcohol distributing businesses to receive training about underage drinking and intoxicated patrons (Perry et al. 1996). Given these simultaneous, multiple intervention components, it is no surprise that Perry et al. (2000) reported reduced past week and past month alcohol use among their study cohort. Williams, Perry, Farbakhsh and Veblen-Mortenson (1999) also reported that children in the Project Northland study had improved Minnesota Multiphasic Personality Inventory (MMPI) scores on variables related to more global adolescent problem behaviors, suggesting a more distal and profound effect that went beyond changing substance use behaviors. Despite Project Northland's success, it is costly, lengthy, intensive, and unlikely to be adopted more widely.

Both of the programs discussed above demonstrate the move from individual level interventions to multiple level interventions. However, they do not address the underlying reason that project DARE continues to be the most commonly used substance use prevention program in the country in spite of its failure to show effectiveness - simplicity, brevity, and low cost.

Relevance and Purpose of the Study

This research builds on existing programs that have demonstrated the effectiveness of individual and family level interventions that reduce adolescent substance use risk (Botvin, 2000; Botvin, Griffin, Diaz, Scheier, Williams, & Epstein, 2000; Hawkins, Spoth, Haggerty, & Zhu, 1997; Litrownik, et al. 2000; Lochman, 2000; McGillicuddy, Rychtarik, Duquette, & Morsheimer, 2001). The underlying goal of this study is to examine whether a Computer Assisted Skills Training (CAST) program designed to increase individual level adolescent substance use resistance skills coupled with a targeted, easily deployable parent intervention can affect adolescent substance use and risk.

Overview of Methodology

This study uses an experimental design. Participants were low income, White, Hispanic, and African American pre-adolescents (9-13 years old) recruited from organizations serving families that were at or below the poverty line (low SES). Parents were contacted and asked to consent to their child's participation in the study. Specifically, this study examined the impact that Computer Assisted Skills Training (CAST) and multi-media parent interventions may have on adolescent substance use risk and behavior.

The CAST training consisted of 10 sessions of a computer-based program designed to teach the adolescents skills consistent with drug abuse resistance. In addition, participants completed one CAST booster session. There were two parent interventions provided. First, parents were sent a video to watch. Second, parents received a four-hour face-to-face training session to reinforce the initial video. Both parent interventions

consisted of parent-child communication skills, drug and alcohol information, general parenting techniques (consistency and discipline), reinforcement of refusal skills (assertiveness), and monitoring techniques.

Each study site was asked about the majority ethnic population they serve (African American, Latino, White). Sites were then stratified by race and randomly assigned to one of three conditions.

The first condition was a parent-CAST intervention group. Adolescents received 10 sessions of a Computer Assisted Skills Training (CAST) intervention and one booster session. The initial CAST intervention occurred over a period that ranged from several weeks to two months. The CAST booster session occurred approximately 6 months after completion of the initial intervention. The parents in this study arm received an initial training video and a four-hour face-to-face booster session. Parents received the video training after the second testing occasion and the booster after the third testing occasion. The second condition was the CAST group. Adolescents received the same CAST training and CAST booster session, but the parental training and booster session were excluded. The third condition served as the control group and received no intervention.

This study also investigated the unique effects of CAST and parent training on adolescent substance use and protective factors. Data was collected on the number of CAST sessions completed and all participants in the intervention groups received the CAST booster. Therefore, the analysis of CAST training focuses on the varying levels of the first 10 sessions. The initial parent training video was sent to all parents and is assumed to have been watched by them all. However, the face-to-face parent training was not received by all parents. Of those attending the parent training, the does of

intervention they received was measured. The dose measures are discussed in detail later. There were four hypotheses posited:

- 1) Adolescents in the parent-CAST group will have greater protective factors than the CAST or control study groups;
- 2) The children (adolescents) of parents who received the video intervention will report additional amounts of protective factors following the face-to-face parent intervention;
- 3) Substance use rates among adolescents will be lower in the parent-CAST group as compared to the CAST or control study groups;
- 4) Children (adolescents) of parents receiving greater parent training dose will have lower rates of substance use than those receiving lower levels of training.

To further frame the discussion, a brief review of the literature is provided. Although the literature is divided for clarity it should not be taken to suggest a lack of interaction between areas of review. Substance use and abuse is a complex issue that both influences and is influenced by multiple systems in an individual's life.

Review of the Literature

Large Sociological Influences

When considering the larger sociological context of adolescent substance use, laws that establish a minimum drinking age, set norms, and increase cost (taxation) should be considered (Hawkins, Catalano, & Miller, 1992). Taxation affects the price of alcohol and has been shown to decrease alcohol consumption in a general population (Chaloupka, Grossman, & Schaffer, 1998; Cook & Tauchen, 1982). The same relationship between the cost of alcohol and adolescent alcohol consumption has been found (Pacula, 1998). The prevalence of adolescent drinking and driving are also reduced when taxes on alcohol are raised (Klepp, Schmid, & Murray, 1996). But do the effects of tax increases generalize to other substances? Given that cigarette smoking often precedes other adolescent substance use, we can examine the effect of cigarette pricing (tax) on adolescent smoking.

Cigarette price has also been found to affect adolescent smoking (Emery, White, & Pierce, 2000). A relationship between older adolescent cigarette smoking and marijuana use provides support for the notion that cigarettes are entry drugs (Farrelly, Bray, Zarkin, & Wendling, 2001). However, the cost of a pack of cigarettes has not been found to affect younger adolescent smokers. At first glance this seems to be a contradiction until one considers that younger adolescents have limited financial resources and typically rely on stealing cigarettes from parents, getting them from friends, or finding other low cost means of procurement. Therefore, from a sociological/economic perspective perhaps raising the cost of alcohol and cigarettes could provide only a minimal disincentive for adolescent alcohol use.

When considering drinking age, Vaillant (1983) found that as drinking age in a state was raised, "Driving While Intoxicated" (DWI) citations for teens decreased. This is consistent with more recent findings by Yu, Varone, & Shackett (1997) who report a 25% decline in late adolescent alcohol use following New York State's adoption of a drinking age of 21. Although these findings are significant, it is also possible that increases in taxation and changes in laws reflect community attitudes. Therefore, it could be argued that the real variable being tested in the above studies were social attitudes toward drug and alcohol use and abuse.

Local Community

A more proximal consideration is the influence of neighborhood on adolescent substance use. Living in an impoverished neighborhood affects opportunities, which in turn affects optimism, and ultimately substance use risk. Williams and Collings (1996) suggest this dynamic is due to those living in extremely poor communities becoming isolated from larger social norms and role models. This isolation is due in part to the departure of successful role models from within the community, which fosters a disconnection between communities, and results in fewer local community attachments with larger social structures (Wilson, 1996). This in turn isolates communities and the families within them, thus reducing economic and social opportunities (Wilson, 1996).

Long term financial strain found in impoverished neighborhoods is also related to depression and substance abuse (Pierce, Frone, Russell, & Cooper, 1994). Deteriorating housing, high mobility, and low levels of local community attachment contributes to neighborhood disorganization, and is related to higher levels of juvenile crime (Wilson, 1996; Wilson & Herstein, 1985). Given the relationship between negative peer group

associations and adolescent problem behavior, including substance use, it is difficult to discern which problem came first, substance use or juvenile crime.

The isolation created by the departure of the working poor from areas populated by the extreme poor, and the reluctance of different classes to mingle (Williams & Collings, 1996), further contributes to weaker community attachments and fewer successful role models (Wilson, 1996). It is this interrelated interruption of the primary group's influence on the individual that places them at greater risk for anti-social behavior generally and reduces the protective qualities related to 'community.'

Given that ethnic minorities are disproportionately represented among the poor (House & Williams, 2000), and the profound effects that poverty has on community, prevention services need to be creative and informed by the sociological influences effecting substance use risk (Epstein, Botvin, Baker, & Diaz, 1999). In spite of the barriers that isolated communities face in generating additional community capital, Epstein et al. (1999) argue that successful prevention efforts: 1) modify perceived peer norms, 2) involve family members, 3) supply supportive role models, and 4) address multiple problem behaviors within one intervention. The aforementioned strategies are consistent with research encouraging sensitivity to the needs and time constraints of the truly 'high risk.'

School

School commitment (bond) is influenced by many factors other than the unique qualities of the individual, and is often used as a measure of an individual's acceptance of educational values that are inconsistent with substance use. Additionally, greater school

bond increases the likelihood an individual will graduate. Graduation from high school has an inverse relationship with substance use.

A study conducted by Jimerson (2000) followed 177 children and their families from the last trimester of mothers' pregnancy until the child was 19 years old. The sample participants were poor, had low education, received public assistance, and were single parents. Jimerson found that the quality of the child's home environment (context), quality of parenting, and parental involvement with school contributed to successful high school graduation. She also found that children with early school success, peer competence, and fewer behavioral problems were more likely to graduate. These findings suggest that positive early school experiences are strongly related to high school graduation, and early environmental factors are essential to coming to school ready to succeed. A child that comes to school prepared to learn is more likely to graduate and may well be less likely to use illicit substances. Substance use intervention strategies therefore, should focus on the earliest and most proximal influence on children-the family.

Given that local school taxes fund local schools, it is not surprising that economically deprived localities with lower tax bases have antiquated schools with high teacher student ratios. This reduces the likelihood that strong connections between the individual and the school will occur. Fitzpatrick and Yoels (1992) found that the amount of money a state spent per child was related to the rate of dropout. Alspaugh (1998) found that expenditures on extra-curricular activities in a school indirectly predicted dropout. He also found that the larger the school the greater the dropout rate. Therefore,

children from low tax base areas will have higher student-teacher ratios and fewer extra-curricular activities that contribute to higher dropout rates.

These issues are clearly related to an adolescent's ability to feel connected to school, faculty, and education. These studies suggest that school dropout is a process not an event (Jimerson, 2000), and that it is strongly related to SES. Given the relationship between school dropout and substance use, successful school experiences can be viewed as a protective factor that is contrary to substance use. This leads to questions about the influence that family factors have on adolescent substance use. These factors include exposure to substance abuse within the family, family characteristics, and social bonds.

Family Influences

Being poor is a risk factor for many ills, from substance abuse, to poor health outcomes (Link and Phelan, 2002). However, several studies also demonstrate that adolescents in higher social classes are also at risk for substance abuse behavior (Bachman, Lloyd, & O'Malley, 1981; Zucker & Hartford, 1983; as cited in Hawkins, Catalano, & Miller, 1992). In fact, Petriatis, Flay, Miller, Torpy, and Greiner (1998) in their review found six studies demonstrating lower socio-economic status (SES) as associated with adolescent substance abuse, while five studies showed no association. There was a relationship found between higher SES and marijuana use. However, the poor, with fewer resources, may suffer the greatest relative social incapacitation due to adolescent substance abuse.

Several factors have been shown to be associated with a decreased likelihood of adolescent substance abuse. Dishion, Capaldi, and Yoerger (1999) found that when predicting early adolescent alcohol use, parent substance use and low SES was mediated

by parent discipline practices. This suggests that the relationship between adolescent substance use, low SES, and parental substance abuse can be mediated with firm parenting techniques. However, when examining the relationship between more rigid parenting styles and marijuana/cigarette use, adolescent substance use increased. These findings only begin to clarify the relationship between parenting style and adolescent substance use behavior.

Others have found that mother's with clear expectations and consistent control techniques (Brook, et al., 1990; Farrel & White, 1998), and those who closely monitored their children (Griffin, Botvin, Scheir, Diaz, & Miller, 2000), have children at lower risk for substance use. Brook (1990) also found that couples with poor parenting skills and high levels of family conflicts have lower levels of bonding with their children. Johnson and Pandina (1991) examined sibling tension and adolescent illicit substance abuse and did not find a relationship between the two. For the most part, data supports the notion that familial tensions decrease parent-child bonding, which results in increased risk for adolescent substance abuse (Farrell & White, 1998; Hansell & Mechanic, 1990). Conversely, consistent parenting practices can reduce family tensions and ultimately adolescent substance use risk.

We often hear that having a substance-abusing parent places children at greater risk for substance use. Brown, Tate, Vike, Haas, and Aarons (1998) examined the effects of exposure to an alcohol abusing family member on children. They found that having a parent who abuses alcohol and exposure to the alcohol abuser, increases the likelihood the child would abuse alcohol. However, they also discovered that the degree of exposure to the alcohol abuser mediated the relationship between family history of

alcoholism and adolescent alcohol use. This would seem to support theories that utilize role models (modeling) as a means of understanding the transmission of behavior.

Family structure is also a variable that may influence adolescent substance use. Since the literature in the United States has focused primarily on married couples and single parents, this discussion is restricted to these two structures. Contrary to popular belief, parenting style has a greater impact on family functioning and child well being than family structure (McFarlane, et al., 1995). Having made such a general assertion, there are some variants to consider.

Children, whose parents were married, living together, and then divorced, tend to academically regress, suffer psychological distress, and go on to abuse substances (Rogers, 1996). However, single parenthood has not been shown to be related to greater adolescent substance use. In fact, Amy and Albreacht (1998) found that single parent African American mothers actually had adolescents with lower rates of substance use compared to two-parent African American couples. This may be due to maternal hypervigilance with regard to monitoring children, or the presence of other sources of extended family help when fathers are absent. Yet, Griffin, Botvin, Scheier, Diaz, and Miller (2000) found that boys in single parent families engaged in higher rates of smoking and alcohol consumption, compared to boys in two-parent families and girls. Presently there is no definitive empirical evidence that family structure has a consistent, direct, predictive relationship to adolescent substance abuse (Henricson & Roker, 2000).

Attempting to isolate the effect of family structure on adolescent substance use, in isolation from other factors is difficult. Definitive statements about the relationship between family structure and adolescent substance use cannot be made. While the data

on family structure is sometimes contradictory, parental participation in prevention programs does strengthen individual level interventions through parental reinforcement of learned skills, and improved family interactions.

Improving parent knowledge and skills can also facilitate proactive parenting and parent-child bonding, thus reducing adolescent substance abuse behavior (Griffin, Botvin, Scheier, Diaz, & Miller, 2000). Parental reinforcement of individual level skills such as refusal skills and knowledge can improve the effectiveness of these interventions.

Improved family interaction strengthens family bonding (attachment) and discourages substance abuse (Hawkins, Catalano, & Miller, 1992; Hawkins, Catalano, Morrison, O'Donnell, Abbott, & Day, 1992). Whereas low levels of parental support and weak parental sanctions against using alcohol is positively related to adolescent substance abuse (Jessor & Jessor, 1977). Parent interventions designed to influence adolescent substance use should:

- (1) teach alcohol and drug facts;
- (2) reinforce parent-child monitoring practices;
- (3) encourage communication;
- (4) teach general parenting skills;
- (5) encourage support for children's refusal skills;
- (6) reinforce consistent parental expectations of children;

Peer Relationships

Adolescent peer relationships, whether they are positive or negative, are difficult to influence once they are established. In order to maximize prevention effectiveness it

has been suggested that interventions targeted towards parents and their children should occur at, or slightly before the developmental point that risk factors begin to predict later adolescent substance use (Arthur & Blitz, 2000). Prevention strategies should encourage the development of a peer group that are less likely to use substances.

As youth mature and enter adolescence, their growing autonomy and expanded peer relationships can increase the likelihood that new problem behaviors such as substance use may occur (Jessor, 1984). Peers are powerful influences in the lives of adolescents and on their substance use risk. Overall, the greater an adolescent's bond with peers that have used substances previously, the more likely they are to engage in substance use (Beal, Auseillo, & Perrin, 2001; Farrell & White, 1998; Bailey & Hubbard, 1990; Flay, Miller, & Koepke, 1989). This risk may be increased when bonds with family are also weak. On the other hand, adolescents who want to please their parents and accept pro-social anti-substance use values, are less likely to use illicit substances.

As 9-13 year olds enter adolescence, parental influences decrease while peer influences increase (Uteck & Hoving, 1969). Therefore, it is important that prevention efforts target a developmental period where parents have strong influences on their children. It is much more difficult to change existing adolescent peer relationships, than to affect the early development of those relationships. In short, it is best to encourage adolescents to select a peer group that are not using substances, rather than trying to change an already existing substance using peer group.

Individual Characteristics

This category of variables goes right to the heart of the age-old 'nature versus nurture' debate. Jessor and Jessor (1977) suggested that adolescents without long-term

goals are at greater risk for substance abuse. However, Winefield, et al. (1993) did not find a relationship between need for achievement and illicit substance use. School performance (as measured by grades in school) is often used as a proxy to represent optimism about the future and has been found to be negatively correlated with substance abuse (Jimmerson, 2000). These studies examined the influence that a sense of direction or optimism may have on adolescent substance use with mixed results. Perhaps school performance is not a good proxy for optimism. It is also possible that adolescents lacking direction or optimism also lacked adult guidance. Lack of adult guidance may in turn be related to a lack of bonding to adults within their environment. It is this line of thinking which is contributing most to current changes in adolescent substance use prevention. There are many environmental factors that contribute to an individual's optimism, achievement, and school bond. There are also idiosyncratic differences to consider.

An early study by Barkley (1990) examined the relationship between Attention Deficit Disorder (ADD) and illicit substance abuse and did not find a relationship. Brook et al. (1990) contended that adolescents who were emotionally reactive might be at greater likelihood to abuse substances as a means of self-medicating. More recent efforts provide support for a positive relationship between the diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) and substance abuse (Sullivan and Rudnik-Levin, 1999). It is difficult to understand the relationship between ADHD and adolescent substance use. This is due to the difficulty in separating the behavioral symptoms of ADHD from the social responses to those behaviors, such as lower adult expectations, negative social feedback, and poor emotional adjustment (Weinberg, Rahdert, Colliver, & Meyer, 1998).

Outside of the diagnosis of ADHD, impulsivity has been found to be related to substance abuse in adolescence (Pogue, et al., 1996). By and large, adolescents who suffer from emotional maladjustment (Vicary and Lerner, 1983), problems with anger, general poor adjustment (White, 1992), and low emotional restraint (Farrell and Danish, 1993) are more likely to be using illicit substances. This group of variables supports the notion that an improved ability to control one's emotions might deter illicit substance abuse. Emotional regulation, or at least the behavioral representation of it, is a skill that can be taught as demonstrated by Schinke and Botvin (1999).

There is also a body of literature that has found a relationship between disinhibition and adolescent substance use. In fact, Pederson (1991) found that adolescents who were thrill seekers and sought out new sensations were at greater risk for illicit substance use. Ferguson, Lynskey, and Horwood (1993) examined affective regulation and aggressiveness, finding that conduct problems among eight year olds predicted the onset of marijuana use among 15 year olds. Hence, those adolescents who characteristically seek external stimulation and take risks may have an inherent baseline level of risk greater than other adolescents.

Intelligence is one of the most curious and complex of individual variables. There is no easy answer about the relationship between intelligence and adolescent substance use. For example, Fleming, Kellam and Brown (1982; as cited in Petriatis, et al., 1998) found that first grade children who scored high on intelligence tests were at greater risk for marijuana use in adolescence. However, the same authors found that males with learning disabilities were at greater risk for marijuana use in adolescence. It is possible that adolescents on either end of the intelligence continuum may not feel 'normal'

compared to their peers. This may result in substance use as an escape from pressures, expectations, or stigma related to their high, or low, intelligence. Recently, Prior, Smart, Sanson, and Oberklaid (1999) found that behavioral maladjustment is strongly associated with learning difficulties after controlling for intelligence and socioeconomic status. This provides support that 'intelligence' is a construct that may not be best measured using standardized tests that have inherent biases.

Irrespective of IQ score, a child's ability to read increases the likelihood of school achievement, and reduces the risk of early age substance abuse (Blackson, 1995). Lyman, Moffit, and Stouthamer-Loeber (1993) found that school performance mediated the relationship between IQ and delinquency, suggesting that there are other factors related to successful school achievement aside from IQ.

Several authors have expanded the discussion of intelligence beyond objective score to a more contextual understanding (Hall & Schaverien, 2001). That is to say that intelligence is often used as a synonym for Intelligence Quotient (IQ) and is viewed as being an innate individual trait. However, a broader understanding of the relationship between social environment, educational achievement, and potential, provides a more complex and temporal understanding of functioning. The negative correlation between successful school achievement and early onset substance use is a crucial one (Blackson, 1995) that needs further exploration.

Intelligence is a complex construct and is best discussed in the broader context of adaptability, sensitivity, awareness, and having situational/social competence, as well as having skills taught in educational settings (Hawkins, Catalano, & Miller, 1992). This is

a much better “fit” with the literature demonstrating the need to consider multiple systems and their impact on adaptation, potential, and risk reduction.

Race/Ethnicity

Contrary to popular belief African Americans are less likely than White or Latinos to abuse substances (Kilpatrick et al., 2000). Latinos generally fall in between African Americans and Whites in terms of substance use prevalence with the exception of eighth grade prevalence use, and more dangerous drug use during the 12th grade (see page 11). However, studies examining Latino substance use often include those that are new to this country and who may be dealing with other problems of adjustment related to acculturation, which may in turn affect their substance use. For example, Elder et al. (2000) found that as Latinos acculturate to American Society, their risk for substance abuse and dependence increases. This may be due to the influence that acculturation has on the family. Family tensions may be exaggerated due to a heightened “generation gap” resulting from different levels of acculturation within a family. The generation gap hypothesis may help to explain the positive relationship between Latino acculturation and substance use, and the influence that improved parent-child communication skills can have on reducing adolescent substance use (Litrownick, et al, 2000; Elder, et al. 2000).

The effectiveness of parent-child communication training may be related to an adolescent’s tendency to adapt more quickly to a new culture as compared to their parents, and to the tension that can occur when family members have different cultural expectations. Communication may facilitate a dialogue between the parent and adolescent resulting in improved understanding and compromise.

Computer Interventions

Utilizing computer technology and multimedia techniques as a method of teaching skills and knowledge is not new. Computer-based interventions have been shown to be highly effective, and have become widely accepted. One recent prevention trial conducted in the Netherlands, for example, demonstrated that computer interventions were effective in preventing the onset of smoking among adolescents (Ausems, Mesters, Breukelen, & De Vries, 2002).

Computer-based interventions have permeated all aspects of American life, including the delivery of human services. As early as 1993, Skinner, Siegfried, Kegler, & Strecher argued that computer technologies could improve patient learning in outpatient medical clinics. Mental health practitioners are using computer-based training methods to employ cognitive restructuring techniques to treat low self-esteem (Horan, 1996). Technology has allowed interactive learning to occur where it might otherwise be impractical. These technologies permit prevention programs to be specifically tailored to particular behaviors, substances, groups, or developmental stage of participants (Dijkstra & De Vries, 1999).

Summary

Adolescents with strong attachments (bond) to family, peer, community, and school values that are contrary to substance use are less likely to become substance users. Although isolation can occur between poor neighborhoods and other communities, which in turn can inhibit social bonding to larger socio-cultural populations, statistics generally do not support greater rates of substance abuse for poor African American and Hispanic

youths as compared to Whites. However, this finding is complicated by the notion that ethnic minorities may drop out of school earlier and not be available for later testing during high school (Fact Sheet: Monitoring The Future, 2000; Monitoring The Future, 2001). Teaching early adolescents how to manage emotions and to utilize good social and living skills, while simultaneously teaching parents how to initiate consistent parenting techniques, and to communicate high expectations, are important variables in the fight against adolescent substance abuse. These also lend themselves to skills training (Schinke & Botvin, 1999; Griffin, Scheir, Botvin, & Diaz, 2001; Ennett, et al., 2001).

Once an intervention has been implemented, additional (booster) sessions have been shown to prolong their effectiveness (Conners & Walitzer, 2001; Stoil & Hill, 2000). However, documentation of the amount (dose) of intervention that parents receive and its indirect relationship to child behavior is noticeably scant in the literature (Coughlin & Vuchinich, 1996).

In the current study, the relationship between Computer Assisted Skills Training (CAST) and parent training dose (amount) on adolescent substance use is investigated. Parent dose is not directly manipulated in this study; however, some parents attended the training sessions, while others did not. Similarly, some adolescents completed 10 sessions of the CAST training, others less. A within group comparison of the parent-CAST intervention group was conducted to examine the possible effect of intervention dose and is discussed later. Findings suggest the importance of developing models that help us both understand the dynamics of adolescent substance use and provide a guide for intervention.

Organizing Framework

The Social Development Model (SDM) (Hawkins, Catalano and Miller, 1992; Hawkins, 1999) is a general theory of human development that integrates Social Learning Theory (Bandura, 1977) and Social Control Theory (Hirschi, 1969). The SDM hypothesizes that individual characteristics and strong commitments (bond) to school, family, peers, and community can all be protective factors against violations of socially accepted standards of behavior. The model asserts that the socialization of children occurs within four domains: (a) opportunities for involvement and interaction; (b) degree of involvement and interaction; (c) skills to participate in this involvement and interaction; and (d) reinforcement for involvement and interaction (Hawkins, 1999). When socializing processes are consistent, a social bond is formed between the individual and social unit (Oxford, Harachi, Catalano, Haggerty, & Abbot, 2000). It is the reinforcement of these bonds that provides the motivation for adherence to social norms and values. Attachment is part of the social bond. It can encourage a positive social link, a personal investment in the group, and commitment to social norms. The theory suggests that to the degree that the adolescent is bonded to a social unit with values that are substance abuse 'resistant,' so will the adolescent be resistant to substance abuse.

The relationship between Social Learning Theory and Social Control Theory to the Social Development Model may not be clear. Social Learning Theory suggests that as behavior occurs, feedback is received by the individual from the environment. The degree to which a behavior is rewarded, either positively or negatively, affects the likelihood that a behavior will reoccur (Thyer & Meyers, 1998). However, how does a child know what behavior to perform? In part, this occurs through a dynamic called modeling. Modeling is a behavioral example, which is then imitated by the observer.

The influence of reinforcement, or the rewarding of behavior, increases the likelihood that the behavior will occur again. This phenomenon of behavior has been empirically demonstrated (Skinner, 1957), and the ability to imitate (modeled) behavior is easily observed, giving both dynamics credibility. However, self-efficacy, or the individual's belief that she/he can produce a desired effect, is important to the likelihood of the behavior being repeated (Bandura, 1977). The degree of self-efficacy possessed by an individual differs by situation. Self-efficacy is complicated, and occurs within a process of modeling, reinforcement, and trial and error. Successful self-efficacious behavior results in a learned skill set that can be more easily utilized in a given situation, and if successful, is self-reinforcing. But how do we understand the more global influences of the environment?

Social Control Theory regards attachment, commitment, involvement, and beliefs as the dominant instruments of delinquent acts (behavior contrary to social expectations). Social Control Theory suggests that delinquent acts are the result of weak bonds (attachment) to society, and that commitment to a social value is representative of the individual's reluctance to pay a consequence for not complying (Hirschi, 1969). Individual belief is related to the degree of acceptance of the larger contextual values (Hirschi, 1969). Social Learning Theory and Social Control theory provide two frameworks that are important to the Social Developmental Model. Together they provide an emphasis on having skills that facilitate pro-social bonding to community, school, family, and peers as protection against drug abuse.

This leads us to a larger question that is not separate from the practice models discussed above. Once a decision is made as to the level of intervention (individual,

school, peer group, or family), how can we gain access to these domains? Litwak, Meyer, and Hollister (1977) considered the issue of access and developed the Balance Theory of Coordination. They suggest that both primary groups and formal organizations differ in their tasks and functions. Based on these tasks and functions, the relationship between the primary group and the bureaucratic organization could either create tension or be complimentary. For example, the primary group best manages those tasks that require idiosyncratic considerations, close proximity, unspecialized skill, and an internalized commitment (low supervision required). The bureaucratic organization best handles those tasks not requiring such functions, but which do require technical expertise related to tasks which lend themselves into being made into routines. The management of organizational and primary group goals occurs through the manipulation of proximity, which can be facilitated using different linkage mechanisms (Litwak, Meyer, & Hollister, 1977).

Weber (1957), a leader in organizational theory, believed that the primary group and bureaucratic organization had to remain apart in order to reconcile what he believed were irreconcilable incompatibilities. Litwak, Meyer, and Hollister (1977) suggest that tension between primary groups and bureaucratic organizations can be managed by adjusting the degree of proximity they have in reference to each other. Additionally, they suggest that the Balance Theory of Coordination, which is the appropriate distance between primary groups and bureaucratic organizations, can help to solve conflicts and facilitate goal accomplishment. The process of accomplishing these goals and manipulating distance can be facilitated using linkages (Litwak, Meyer, Hollister, 1977).

For example, a prevention program that is attempting to provide skills training to a particular population must decide how best to gain access to the population. The community's involvement in the training will be based to a large degree on the level of trust that exists between the community and the organization. The organization could send out fliers and hope that people will arrive for the training. However, they would likely be disappointed by the turnout. The disappointing attendance may be the result of a relationship that is too distal from the community. If the effort used a trusted community center as a 'linkage,' it could have increased the likelihood of participation. In this case, a linkage that has greater levels of trust within the group (community leader, community center, etc.) helps to decrease the distance between the organization and the community. This in turn increases the likelihood of community participation.

A critical concern of social work practice is how to 'reach' adolescents, families, and communities? Litwak, Meyer, Hollister (1977) suggest that those functions that require high degrees of trust also require close proximity. Therefore, programs attempting to provide substance use prevention programs need linkages that are close to the community, family, and adolescent. For example, it is not unusual for a school to ask a student to bring her/his schoolwork home to be signed by the parents. The school does this in order to ensure the parents see the student's work and to encourage parent participation. This would be an example of using the student as a linkage between school and parent. Adolescent substance abuse prevention efforts also need to use similar strategies to develop opportunities to directly or indirectly engage families.

Conclusion

Effective adolescent substance use prevention programs target the risky individual or social domain of an individual's life and utilize specific strategies that provide the greatest likelihood of reaching those environments. There are several levels and types of intervention that have been shown to influence the adolescent and/or their surroundings that have proven effective in reducing substance use risk. First, providing adolescents with skills training, which decreases emotional reactivity while improving social and life skills, can provide a 'low cost' method for rejecting substance abuse opportunities and encourage pro-social bonding. Second, given that the family is an important influence on children, programs need to include linkages that 'reach' the family and that build or reinforce protective family factors. Third, parents benefit from general parenting skills, monitoring techniques, communication skills, and education that enable them to support their adolescent's drug resistance skills. Finally, linking adolescents with community organizations can help facilitate the development of a peer group that is drug resistant.

Adolescent substance abuse prevention efforts should encourage pro-social bonds and attachments to groups that are supportive of non-drug related values and norms. Improved bonding can only occur with increased degrees of opportunity to participate in positive interactions and settings, followed by the reinforcement of their involvement. Adolescent substance abuse prevention is in many ways about expanding the adolescents' perspective. Interestingly enough, it is also about expanding the perspective of those around them.

CHAPTER 2

Methodology

Overview of Design and Research Question

This study used a three group experimental design in order to assess the relative effectiveness of a parent training video and face-to-face parent training on adolescent substance use. The research question asked whether varied training provided to parents through video and group methods reduce adolescent substance use, and environmental risk. For the purpose of clarity, a timeline is provided outlining the timing and methodology used (appendix A).

Computer Assisted Skills Training (CAST) for adolescents and a video and face-to-face parent intervention for parents were provided. The skills taught in these interventions and the methods used to impart the training, were specifically designed to minimize barriers and maximize effectiveness. Additionally, varying levels of training were analyzed to examine the relationship between amount of intervention (dose) and its influence on substance use behavior.

Design and Sample

This study uses an experimental design, targeting low income, White, Hispanic, and African American early adolescents (9-13 years old). The study sites were stratified by race and randomly assigned to one of three conditions:

- 1) The parent-CAST group – Adolescents received CAST training and a booster session, and parents received a video and face-to-face training session;
- 2) The CAST group - receives the CAST training and a booster session;

3) The no intervention control group.

All study participants were recruited from community service organizations that serve low-income, high-risk families within the greater New York City area. There were 17 Boys and Girls Clubs of America, 6 Police Athletic League, 9 United Neighborhood House organizations, 5 Independent Service Agencies, and 1 YMCA involved in the study. These groups identified members that were 9 to 13 years old and whose families were living at or below the poverty line.

Parents were contacted and invited to a meeting in order to discuss their child's participation. If they were unable to attend the meeting, they were contacted by telephone, sent information, and/or offered an individual time to meet. After parents were contacted, consents were obtained, and the study participants received the appropriate intervention consistent with group assignment.

This sampling design had several benefits. First, it increased the likelihood that each arm of the study would be similar at baseline. Second, because sites were the unit of randomization and group assignment, the risk of contamination between study participants was reduced. Third, since the study used agencies that were well known and highly trusted within the community, the study had greater credibility, thus reducing population mistrust and attrition. Moreover, community agencies also provided on-going answers to general questions that families had during the course of study.

There are however, some disadvantages to the sampling strategy. Grouping sites by ethnic majority served does not consider possible idiosyncratic differences between families at each site. Therefore, there was a greater likelihood of between group differences at baseline on family structure. There was also the possibility that larger

sociological factors would differentially effect families. For example, site location may vary by proximity to higher SES populations, availability of additional services, degree of social isolation, crime rates, and varying levels of access to drugs and alcohol. The sampling also risked a self-selection bias. It is possible that those at greatest risk did not choose to participate, leaving the researcher with a more highly motivated, engaged parent than would be reflective of the community at large.

With the major design of the study in place, all adolescents were pre-tested between October 2000 and January of 2001. Adolescents in the parent-CAST group and CAST group received the initial 10 sessions of the Computer Assisted Skills Training (CAST) between January and July of 2001, and were retested upon completion of the training. The parents in the parent-CAST group were then sent a 20-minute video to watch between January and July of 2001. Adolescents in the two intervention groups received an additional one session of the CAST intervention as a booster between January-June 2002 and were retested (see timeline, appendix A). The 4-hour face-to-face parent booster was conducted between June and July 2002 and the adolescents were tested between September-November 2002. The video and 4-hour face-to-face parent boosters were designed to be complimentary and had the same goals.

Adolescents completing the surveys at occasions 1-3 completed them in one of two ways. Approximately two-thirds of the participants completed the surveys at the study sites privately. The other one-third were called by research assistants in order to complete the survey by phone. The final testing occasion allowed for the study participants to enter a website and take the survey over the internet. Approximately, two-third of the participants completed the survey over the internet, with the remaining one-

third being called by research assistants. These methods have contributed to a remarkably low rate of attrition (see attrition) but ran the risk of introducing additional internal threats to the studies validity.

In May 2002, 15 parents in the parent arm were called by the researcher in order to solicit feedback related to the timing, location, and possible barriers to their participation in the face-to-face parent booster session (appendix B). From the initial feedback received from the parents, a brief post card was mailed to all parents in order to solicit additional feedback (appendix C). The implementation of the face-to-face parent booster was adjusted based on parent feedback, and a certificate of completion was added.

Between June and July 2002, parents received a 4-hour face-to-face intervention comprised of 6 components:

- (1) teach alcohol and drug facts;
- (2) reinforce parent child monitoring practices;
- (3) encourage communication;
- (4) teach general parenting skills;
- (5) encourage support for adolescent's refusal skills; and
- (6) reinforce consistent parental expectations of adolescents.

The face-to-face parent booster was designed to reinforce the parent video training, and encourage parents to support skills that the CAST training provided to their children. Parents were sent invitations and received phone calls to encourage their attendance at the training. Parents unable to attend the initially scheduled face-to-face training dates

were contacted again and rescheduled. In total 15 face-to-face parent booster workshops were held with between two and six parents attending training sessions, for a total of 64 parents trained. Parents attending the workshop were also given a workbook to complete with their child at home, and a prepaid post card to return to the researcher confirming the workbook was completed. The purpose of the workbook was to encourage interaction and dialogue between the parent and their child. Between September and November 2002, all adolescents in the study were re-tested.

The face-to-face parent training attempted to reduce attendance barriers by providing transportation and child-care reimbursement when requested. Training sessions included snacks, a \$10.00 metro-card and phone card, and a raffle for a \$50.00 gift certificate to encourage participation.

For the purpose of evaluating the relative strength of the parent intervention, two measures were used. The first measure assessed the amount of face-to-face training parents actually received (appendix D). This measure is a score derived from an independent evaluator's assessment of the parent's involvement in the training, and the completion of a workbook (appendix E). The second measure assessed the degree to which the researcher accomplished the goals of the training (appendix F). These scores were aggregated and an overall "dose" variable was created for the parent intervention.

An additional dose variable was derived from data collected about the number of Computer Assisted Skills Training (CAST) sessions each adolescent completed out of the ten sessions. The dose scores were utilized to examine the effect of different types and levels of dose on varied outcomes.

During a 4-hour workshop, raters and evaluators were trained on program material, program goals, and their roles. The training consisted of reviewing the material to be presented, as well as practice rating role-plays of presenters and parents. Ratings were analyzed and role-play repeated until the inter-rater reliability was acceptable (Table 3).

In order to improve future parent training and to assess whether parents found the training helpful, parents evaluated the training at the end of each training session (appendix E). The results of the parent satisfaction survey is presented in table 4 and discussed later.

All data gathered, excluding the dose data, were collected from the adolescents through the completion of a survey (appendix G). A decision was made not to directly measure parent changes for several reasons. First, parent training was intended not only to impart information and skills, but also to energize and empower the parents. Second, it was important to minimize any implicit infantilization of parents or parent blaming which was contrary to the goal of empowering them. Third, parent testing may have resulted in a focus on 'passing' the test as opposed to learning, engaging, and developing relationships with other parents and study employees. There are of course weaknesses to this approach. The absence of parent measures does not allow for the assessment of contextual factors that can influence parent change.

The study began with a total of 514 participants. There were 161 adolescents in the parent arm of the study, 190 adolescents in the CAST intervention group, and 163 adolescents in the control arm. Grade, age, gender, race, and family structure were used to compare survey completers to survey non-completers at each testing phase to guard

against the introduction of any sample bias. Table 7 represents a between group comparison of participants missing at the fourth testing occasion. For the purpose of this study those not completing a given testing cycle are not considered dropouts as they may complete surveys on future occasions.

Operational Variables

The relationship between variables was inferred from the theoretical framework of the Social Developmental Model (SDM) and the literature available on adolescent substance abuse (appendix H). Additionally, the Balance Theory of Coordination has helped to guide the consideration of the relationship between service organization, adolescent, and parent. Although these theories were discussed in chapter 1, a brief overview is provided to explain the selection of the protective variables.

SDM is a meta-theory that incorporates Social Learning Theory and Social Control Theory. Social Learning Theory assists in clarifying how substance use behavior is influenced by individual observation, how it is maintained (reinforcement), and what strategies can be employed to intervene. The concept of self-efficacy is incorporated within Social Learning Theory and is the basis for skills training as an early intervention strategy. Social Control Theory explains how bonding (attachment) and commitment to family, schools, peers, and community effects an individual's decision to adhere to pro-social behavior (not using substances), in this case resist substance use. Balance Theory of Coordination guides the selection of how best to access the family by considering the level of trust and commitment that a task requires. Therefore, in a chain of consideration it makes sense that community organizations with an already existing rapport with families can help link adolescents with the study, which in turn helps to facilitate

engaging the parent. Community organizations were used to help facilitate the parent training provided in this study.

The variables of interest are predicated on this theoretical framework. Dose-response and fidelity variables are not included in this theoretical model. Data related to these variables have been added in recognition of the fact that both the participant, and the integrity in which a program is delivered, may have a role in the successful imparting of intervention skills. Program fidelity and training dose are both factors that are distal from the most often discussed risk/protective factors and are often overlooked in intervention studies. In other words, it is often merely assumed that the program is delivered as outlined and that the participants are engaged in the process.

CAST and parent interventions were intended to strengthen protective factors that increase an adolescent's ability to resist substance use. All data was collected from the adolescents participating in the study through a self-report survey. The adolescents were asked questions related to their substance use, peer affiliations, family variables, school grades, refusal skills, knowledge of assertiveness and consequences, and cognitive skills (cognitive delay and decision making).

All variables in this analysis were coded so that positive increases in score represented improvement. Consistent coding methods provided for continuity in the interpretation of the analysis. For example, increases in an adolescent's substance use score would be interpreted as less substance use. However, increases in an adolescent's score on family or peer influences would infer additional 'protection.'

While family structure has not been found to be directly related to adolescent substance abuse behavior, it represents a variable that can confound other variables in the

study. For example, the ability of a parent to supervise their child may be related to the number of adults in the home. Family structure data was not collected on the study participants at baseline. The survey was modified and family structure data was collected during the January-June 2002 testing occasion. Family structure was not a focus of this study but was used to examine between group equality.

The first set of variables is related to substance use. Substance use is defined as the use of a drug (including alcohol and cigarettes) without being of legal age, or without having a physician's prescription. Substance use is measured by eleven likert questions designed to measure a full range of substances. Study participants generally reported low substance use frequencies; therefore substance use questions were aggregated.

The first substance use variable in this set is an aggregate score related to cigarette smoking. Weekly and monthly cigarette use were added together and examined as an entry drug. The second level of substance use represented middle level risk drugs. For this composite weekly and monthly alcohol and marijuana use were added together with the reported frequency of yearly alcohol use. The third and final level of substance use represented high-level risk drugs. This composite includes weekly and monthly reported use of inhalants, crack, and heroin.

The second set of variables under study is related to the family protective factors. This construct consists of an adolescent's report of discussions they had with parents about alcohol, the monthly frequency of those discussions, whether or not parents had rules about alcohol, and whether they would get in trouble if caught drinking alcohol. The frequency of parent discussions about smoking and other drugs were added to the survey at the 3rd and 4th testing occasion.

The third set of variables was related to affiliations with peers. Consistent with the theoretical model, if the intervention was effective, and occurred prior to the development of substance use behavior, the intervention groups should have peers who are less likely to be using substances. Conversely, prevention strategies that are implemented employed after children have a substance abusing peer group are going to be less affective in changing peer group affiliations. This study provided interventions at a point where peer influences would be expected to be relatively low which allows for the possibility that future peer group influences can be shaped. There were six questions designed to determine how many of the subjects five closest friends use various substances and how often those friends offer them alcohol. A seventh question asked how often a friend asked a participant to drink. These variables were examined under the construct of peer influences.

The fourth set of variables examined the effectiveness of skills training with adolescents. Skills training can improve the adolescent's ability to reject peer pressure. Therefore, this set of variables is related to self-efficacy/refusal skills. Four questions in this group inquired about the adolescent's willingness and confidence to engage in behavior that is contradictory to substance use behavior.

The fifth set of variables were related to cognitive skills that are required to resist impulsive decision-making and action. Generally speaking, impulsive adolescent behavior is not always related to simple thrill seeking or anxiety reactions. Often, what adults view as impulsive are actually poorly thought out decisions. Adolescents often feel invulnerable and invincible, and may not consider the long-term implications of their behavior. This measure assesses the ability of the CAST (Computer Assisted Skills

Training) to advance their consideration of delaying behavior, acting and expressing positive behavior towards peers who are getting in trouble, and considering alternative choices and consequences.

A sixth set of variables examined school bonding. The first question asked about the adolescent's plans after high school. This is a nominal variable with eight choices ranging from nothing to going to college. For the purpose of this analysis, after high school intentions were coded categorically. Greater interest educational pursuits were coded positively representing greater optimism and better school bond. Adolescent's who are optimistic about the future may be more committed to school.

The second school related question asked adolescents about their school grades. The Substance Abuse and Mental Health Service Administration (SAMHSA) published findings from the National Household Survey on Drug Abuse (1997) and used school enrollment and grades as a proxy for school bonding. There is some face validity to the notion that school dropouts would have a different level of school commitment than those remaining in school. However, given that school attendance is required in most states until the adolescent is 17 years of age, those under that age only had school grades to use as a proxy for school bonding. For the purpose of this study, both optimism about the future and school grades were used to represent school bond.

Two final questions measured the adolescent's ability to define assertiveness and consequences. These variables had four options with one correct answer. Both of the knowledge questions were dichotomized with the three wrong answers recorded as a one and the correct answer recorded as a two.

Instrumentation

A 42-item survey was given to each adolescent at baseline, after initial intervention, and before each CAST booster session. Initially, family structure and the conversations parents have with their children about cigarette use and drugs were not collected due to an oversight. These questions were added prior to the third testing occasion, resulting in a 51-item survey (Appendix G).

The risk/protective factors included in the questionnaire represent a set of variables related to adolescent substance abuse risk. These domains are predominantly measured using likert scales. For example, in examining the power of peer influences the adolescent is asked how many of their friends drink alcohol. Possible responses include: (a) None; (b) One; (c) 2-4; (d) 5-7; (e) 8 or more.

Demographic variables and family structure data were included in the survey that adolescents completed. Demographic variables consisted of school grade, age, race, gender, and family structure. Demographic variables were used for baseline comparisons and to examine those not testing at a given occasion with those who did.

Parent training dose-response was also measured (Appendix D). Dose was defined as the amount of intervention that the participant received. Parent dose was measured using an 8-point rating scale assessed during the training. An additional 2 points were added when parents returned the postcard noting that they had completed the workbook with their child. One previously trained independent observer rated each parent in attendance at the face-to-face booster session. The scale is comprised of behavioral observations of the participants. For example, if the parent slept through the

entire program, they were rated one (given credit for showing up). If a parent interacts with other participants, and was fully immersed in the process, they received an eight.

Fidelity of the training is as important as the dose. Fidelity is defined as the degree to which the presenter accomplishes the tasks outlined in the training goals (Appendix I). In order to ensure the fidelity of the training, a second observer scored the presenter (Appendix F). The presenter was scored on a scale of 1-10, reflecting the degree to which training goals were completed. A score of 1 reflected a presenter who was unable to complete all of the goals of the training. A score of 10 reflected a presenter who completed all goals and was able to 'connect' with the audience.

Parent dose score and training fidelity ratings were aggregated and used to represent the "training dose" received by the parent. The creation of this variable allowed for a within group comparison of the impact of training on adolescent substance use.

CHAPTER 3

Results

This study consisted of 514 participants selected from 38 non-profit organizations providing after school services to families that were at or below the poverty line in the New York City metropolitan area. Study sites were stratified by race and randomly assigned to one of three conditions. There were 12 sites randomly assigned to the no intervention control group, and 13 sites assigned to the CAST only group and parent group, representing 163, 190 and 161 participants respectively (N=514).

Data were analyzed in SPSS using chi-square analysis and the generalized linear models (GLM) of analysis of variance (ANOVA), analysis of covariance (ANCOVA), and linear regression. Post-hoc analysis with Bonferonni correction was utilized to further differentiate groups in the ANOVA and ANCOVA analysis. The ANCOVA statistical strategies were utilized due to the relatively low initial variances between groups. As the adolescent's mature, the variance between subjects is increasing which will permit future analysis to use statistical methods that pool the variances over time.

There were four testing occasions during the course of this study. Those participants that missed a testing occasion were not included in the analysis for that occasion except to determine whether they differed from the rest of the study participants (see attrition). The within group mean was substituted when participants completing the survey at a testing occasion had missed individual questions in order to guard against reductions in the sample size.

There are some risks to using mean imputation with data sets that have more than five percent of the data missing. Little and Rubin (1987) and Schafer (1997) suggest that mean substitution is not helpful with large data sets with plentiful amounts of missing

data because it can artificially reduce the overall error rate in the data. It is generally safe to use mean substitution when the total number of missing data is below 5% of the total data (University of Texas at Austin Consulting Service, 2002).

Mean substitution was used for two reasons. First, providing a value in fields where the data is Missing Completely At Random (MCAR) can be safely used without risk of unduly biasing the data. Also, MCAR infers that there are no confounding third variables contributing to the missing data. MCAR is inferred after examining the distribution of missing data across the sample to look for patterns. Second, missing data results in case deletion that can threaten the overall power available in the design for detecting between group differences especially when variances are small. The number of single question omissions by study participants was less than one percent, which is well within the five percent suggested maximum for using mean substitution as a method of handling missing data.

With a very low rate of missing data why not delete the case and simplify data management? This study provided interventions to young adolescents prior to the age in which risk factors for substance use would be expected to increase. Baseline analysis reveals study participants had a mean age of less than 11 years old. With participant age being relatively young, individual and group variances are very small, making it difficult to detect differences. Therefore, it was essential to protect the sample from any unnecessary reduction in power that could inhibit detecting between group differences.

An additional reason for substituting means was to ensure baseline oversights did not rule out the possibility of using a particular case in the analysis. This study focused

on two primary testing occasions (t-1 and t-4) making the decision to impute baseline means nearly inconsequential.

Sample Characteristics

Study participants had a baseline mean age of 11 years old ($SD=.99$) with a relatively equal number of boys (49%) and girls (51%) participating (Table 1). There were only two 14 year olds assigned to the parent arm that represented age outliers. It was decided to keep them in the study as they did not affect the between group equalities when removed from the analysis. The sample ranged in grade from 4th grade to 8th grade with the mean being sixth grade ($SD=1.03$). The sample consisted of African American ($N=265$), Hispanic ($N=139$), White ($N=50$), and those who identified themselves as other ($N=60$), young adolescents. The modal family structure type reported was a two-parent family ($N=233$), with single parent mother being the second most common ($N=180$).

Table 1 Within group demographic frequencies

	Control n=163 N (%)	CAST n=190 N (%)	Parent-CAST n=161 N (%)
GRADE (years)			
4 th	18 (11.0)	35 (18.4)	17 (10.6)
5 th	54 (33.1)	52 (27.4)	65 (40.4)
6 th	57 (35.0)	61 (32.1)	51 (31.7)
7 th	27 (16.6)	37 (19.5)	21 (13.0)
8 th	7 (4.3)	5 (2.6)	7 (4.3)
AGE			
9 years old	12 (7.4)	18 (9.5)	7 (4.3)
10 years old	48 (29.4)	58 (30.5)	56 (34.8)
11 years old	58 (35.6)	65 (34.2)	62 (38.5)
12 years old	38 (23.3)	42 (22.1)	26 (16.1)
13 years old	7 (4.3)	7 (3.7)	8 (5.0)
14 years old	0	0	2 (1.2)
GENDER			
Male	79 (48.5)	103 (54.2)	71 (44.1)
Female	84 (51.5)	87 (45.8)	90 (55.9)
RACE			
White	23 (14.1)	14 (7.4)	13 (8.1)
African Amer.	61 (37.4)	122 (64.2)	82 (50.9)
Hispanic	60 (36.8)	30 (15.8)	49 (30.4)
Other	19 (3.7)	24 (12.6)	17 (10.6)
Family Structure			
Other	6 (3.9)	9 (7.2)	10 (6.8)
Grandparent	8 (5.2)	14 (7.8)	4 (2.7)
Father only	3 (1.9)	6 (3.3)	3 (2.1)
Mother only	55 (35.7)	77 (42.8)	48 (32.9)
Two Parents	82 (53.2)	74 (38.9)	81 (55.5)

Baseline Between Group Comparisons

Using one-way analysis of variance (ANOVA) and Chi-square analysis, groups were examined for their pretest equivalence on demographic variables (Table 2). Groups did not statistically differ by school grade, age, race, gender, or family structure. Although there was not a statistically significant difference between groups by race, the CAST group was proportionally more likely to be African American (64%) as compared to the parent-CAST group (51%) or control group (37%) (Table 1). These differences were not statistically significant as will be discussed later. The CAST group had proportionally more males (54%) than the parent-CAST (44%) or control groups (44%). Hispanic participants made up 37% of the control group as compared to 30% for the parent-CAST group and 16% of the CAST only group. Finally, whites made up 14% of the control group, 8% of the parent-CAST group, and 7% of the control group.

Table 2 Demographic characteristic of study population

CONTROL			CAST		PARENT-CAST				
n=163			n=190		n=161				
GENDER ^a							χ^2	p	
Male	48.5 %		54.2 %		44.1%		3.62	ns	
Female	51.5 %		45.8 %		55.9 %				
	M	SD	M	SD	M	SD	df	F	p
GRADE (years)	5.70	1.01	5.61	1.08	5.60	.99	2	.48	ns
AGE	10.88	.99	10.80	1.00	10.86	.99	2	.31	ns
RACE	2.46	.88	2.33	.79	2.43	.79	2	1.13	ns
Family Structure	4.29	1.02	4.07	1.10	4.27	1.11	2	2.17	ns

Note: ^aChi-square analysis performed because this is a bivariate classification variable

One-way analysis of variance was conducted in order to examine baseline between group equivalences on variables of interest (Table 3). The groups differed at baseline on 3 skill related variables of interest: whether to remain friends with a peer who was heading into trouble $F(2, 511) = 4.44, p < .01$, the degree of difficulty for saying no to alcohol $F(2, 511) = 4.89, p < .01$, and whether there are more than one way to solve a problem $F(2, 511) = 3.67, p = < .05$. A between group post hoc comparison of group mean differences (MDIFF) was conducted with a Bonferroni correction in order to isolate the groups that differ and to adjust for multiple pair-wise comparisons.

The CAST group was statistically more likely at baseline to believe that there were more than one way to solve a problem as compared to the parent arm (MDIFF = .13, $p < .05$). They were also more likely to say no to a friend who offered them alcohol as compared to the control group (MDIFF = .29, $p < .01$). However, the control group was statistically less likely to remain friends with peers who are headed for trouble than the CAST (MDIFF = .09, $p < .05$). In short, the control group participants were less likely to associate with friends that were misguided, but more likely to find it difficult to say no to a friend who offered them alcohol as compared to the CAST group. The CAST group was also more likely to believe that there were multiple ways to solve a problem as compared to the parent-CAST at baseline (MDIFF = .13, $p < .05$).

The final baseline differences were related questions about the frequency of monthly parental conversations about drug and cigarette use and assertive knowledge. The two questions related to parent conversations about cigarette and drug use were added at the third testing occasion and were used for baseline comparison. There were baseline differences on the number of monthly parent-participant conversations about

drugs $F(2, 511) = 4.84, p < .01$ and cigarette use $F(2, 511) = 4.21, p < .05$. Post hoc analysis revealed adolescents in the parent-CAST group reported more frequent parent discussions about cigarettes ($MDIFF = -.38, p < .01$) and drugs ($MDIFF = -.40, p < .01$) compared to the control group. These two variables were added at the third testing occasion and may reflect the influence of the parent video. There were also between group differences on assertive knowledge $F(2, 511) = 3.67, p < .05$. Post-hoc analysis revealed that the CAST group had greater assertive knowledge than the parent-CAST group ($MDIFF = -.10, p < .02$). Analyses conducted later used Analysis of Covariance (ANCOVA) to control for baseline differences by modeling pretest scores as covariates.

Table 3 Baseline comparison of protective factors and substance use

	Control		CAST		Parent-CAST		df	F	p
	N=163		N=190		N= 161				
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>			
Protective Factors									
Family									
Parents discuss alcohol	3.27	(.81)	3.39	(.73)	3.45	(.77)	2	2.28	ns
Frequency of alcohol talk past 1 month	2.14	(1.06)	2.38	(1.14)	2.41	(1.20)	2	2.87	ns
^a Frequency of cigarette talk past 1 month	2.25	(1.15)	2.40	(1.12)	2.62	(1.13)	2	4.21	.02 ¹
^a Frequency of drug talk past 1 month	2.12	(1.08)	2.30	(1.08)	2.52	(1.16)	2	4.84	.01 ¹
Rule against alcohol	2.87	(.35)	2.88	(.32)	2.88	(.35)	2	.06	ns
In trouble if drink alcohol	2.98	(.16)	2.96	(.22)	2.93	(.28)	2	1.74	ns

Peer Influence						
5 friends smoke	3.74 (.71)	3.73 (.73)	3.84 (.55)	2	1.29	ns
5 friends drink	3.77 (.67)	3.83 (.60)	3.90 (.43)	2	2.18	ns
5 friends drunk	3.85 (.52)	3.87 (.48)	3.89 (.44)	2	.28	ns
5 friend inhalant	3.86 (.53)	3.84 (.47)	3.86 (.52)	2	.17	ns
5 friends THC	3.89 (.44)	3.94 (.31)	3.97 (.17)	2	2.46	ns
5 friends crack	3.94 (.34)	3.97 (.27)	3.97 (.17)	2	.45	ns
Ask you to drink	2.97 (.17)	2.95 (.27)	2.94 (.26)	2	.53	ns
School						
Grades	3.53 (1.05)	3.64 (1.03)	3.75 (1.07)	2	1.71	ns
After H.S. Plans	2.93 (.34)	2.92 (.38)	2.92 (.31)	2	.05	ns
Refusal skills						
Please friends	2.80 (.39)	2.78 (.44)	2.86 (.35)	2	1.78	ns
Stop trouble	2.86 (.35)	2.82 (.38)	2.84 (.38)	2	.51	ns
Keep troubled friends	2.96 (.22)	2.87 (.38)	2.94 (.26)	2	4.44	.01 ²
Hard to say no	3.20 (.94)	3.49 (.78)	3.37 (.90)	2	4.89	.01 ²
Cognitive skills						
Problem solve	3.68 (.50)	3.60 (.62)	3.70 (.53)	2	1.78	ns
One choice	2.70 (.46)	2.71 (.46)	2.59 (.50)	2	3.67	.03 ⁴
Think of choices	4.07 (.99)	4.06 (.96)	4.04 (.98)	2	.03	ns
Do things do not think first	3.28 (.64)	3.22 (.68)	3.22 (.70)	2	.36	ns
Live here & now	3.05 (.87)	2.88 (.86)	2.91 (.88)	2	1.82	ns
Knowledge						
Assertiveness	1.13 (.33)	1.17 (.38)	1.07 (.26)	2	.03	.03 ⁴
Consequences	1.50 (.50)	1.52 (.50)	1.42 (.47)	2	2.15	ns
Substance Use						
Entry Drug Use	9.98 (.22)	9.97 (.37)	9.97 (.39)	2	.02	ns
Middle Risk Use	24.83 (.77)	24.86 (.63)	24.88 (.64)	2	.16	ns
High Risk Use	19.93 (.61)	19.92 (.69)	19.96 (.32)	2	.24	ns

NOTE: ^a Comparison at t₃ which is first time data collected on this variable. ¹ Significant difference between parent-CAST and control; ² significant difference between CAST and control; ³ significant difference between both intervention arms and control arm; ⁴ significant difference between parent-CAST and CAST arm. Greater scores represent improvement.

Income data was not collected from parents. Income was controlled by recruiting participants from organizations serving families who live at or below the poverty line. However, between group baseline equivalences were assessed for possible confounds related to neighborhood location and access to resources. Using the most recent Census data (1990) aggregated to permit the use of zip codes to retrieve median income, study sites were compared by group assignment (table 4). There were no significant between group differences on median income $F(2, 37) = 1.09, p = .35$.

Table 4 Between study group median income

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>df</u>	<u>F</u>	<u>p</u>
Control	12	35464	18414.33	2	1.09	.35
CAST	13	32302	15532.10			
Parent Arm	13	26577	11617.14			

The implementation of the four-hour face-to-face parent booster required 3 trainers and 4 observers. Trainers and raters were recruited and attended a 4-hour training session. All trainers had a bachelor's degree in a related human service area and some previous training experience. Raters were undergraduates attending a local New York City university. During the session, trainers practiced delivering the training material while raters rated both the delivery of the material and those who were role-playing parents.

The training provided an opportunity for all research assistants to become familiar with the program material, the training process, and each other. After rating role-plays a discussion about the process permitted clarification and interpretation of the rating criteria and material. The last two ratings conducted were analyzed using Pearson

correlation coefficients in order to assess the inter-rater reliability. Table 5 shows that by the end of the training raters were highly correlated with each other.

Table 5 Inter-rater reliability

	Rater 1	Rater 2	Rater 3	Rater 4
Rater 1	1.00	.97*	.99**	.99**
Rater 2	.97*	1.00	.96*	.96*
Rater 3	.99**	.96*	1.00	.99*
Rater 4	.99**	.96*	.99*	1.00

Note: Pearson Product Moment correlation: * $p < .05$; ** $p < .01$

Prior to implementing the face-to-face parent training, 15 parents from within the parent arm of the study were randomly selected using SPSS. These parents were called on the telephone and asked to participate in a survey that would help us plan the training. All of the parents interviewed thought the training would be helpful, with 14 out of 15 stating they would attend. Saturday was the preferred training day by 14 out of 15 parents, and the model time was 11 a.m. Parents stated that 1-2 weeks advance notice would be required, and 73% preferred that the training occur at the local after school program that their child attends. Childcare was not an issue for 18% of the parents surveyed, with an additional 18% stating it depended on the day. The vast majority of those surveyed (64%) did not comment on the childcare question. Overall, childcare did not present as an overt barrier to parental attendance at the training, but childcare reimbursement was provided as needed. Parents were also asked about the subject matter they would like presented. Parents wanted drug and alcohol information, communication with kids, peer pressure, and handouts. Finally, questions about incentives revealed the provision of a certificate of completion, gift certificates, and refreshments would be sufficient.

For additional information about the needs of the parents, and in an effort to reach more parents, a post-card was mailed to every parent in the parent arm (N=161). Parents were asked whether training would be helpful, if they would attend a 4 hour workshop, what day and time would be most convenient, whether a certificate of completion was a good idea, and how much advanced notice they needed. Few post-cards were returned (N=19), but of those returned, the findings were consistent with the telephone survey results.

After attending the parent workshop, all parents completed a satisfaction survey (Table 6). The questions were arranged on a 4 point likert scale ranging from disagree to strongly agree. The comments section of the survey was interpreted for trends and coded nominally. Overall the comments revealed that the training was well received and enjoyed by the parents. The training varied in length depending on the size of the group and the level of parent participation, making it difficult to interpret parental attitudes towards the length of the training. More than 50% of the participants did not like the length of the training, with a majority of them preferring shorter workshops. Overall, parent comments were positive. The positive comments may have been due to a self-selection bias resulting from a higher motivated parent attending the training. However, several comments seemed to suggest that a parent workshop would be helpful.

All participants attending the workshop received a small gift bag with pens, pencils, and a small writing pad. In addition, they received a ten dollar telephone calling card, ten dollar New York City Metro-card, and entry into a drawing for a fifty dollar gift certificate, which occurred at the end of the training.

Table 6 Frequency for parent workshop satisfaction

	Frequency N=56	Percent
Was the training helpful?		
Not helpful	0	0
Somewhat helpful	1	1.8
Helpful	18	32.1
Very helpful	37	66.1
The training was 4 hours, but should have been.		
2 hours long	8	14.3
3 hours long	11	19.6
4 hours was just right	24	42.9
5 or more hours long	4	7.1
Missing	9	16.1
Instructor knowledgeable and did a good job.		
Disagree	0	0
Somewhat agree	0	0
Agree	24	42.9
Strongly Agree	31	55.4
Missing	1	1.8
Topics were relevant to your family.		
Disagree	0	0
Somewhat agree	0	0
Agree	20	35.7
Strongly Agree	36	64.3
Missing	0	0
Talking with other parents was helpful.		
Disagree	0	0
Somewhat agree	0	0
Agree	23	41.1
Strongly Agree	31	55.4
Missing	2	3.6
The drug and alcohol information was helpful.		

Disagree	1	1.8
Somewhat agree	1	1.8
Agree	16	28.6
Strongly Agree	38	67.9
Missing	0	0

The parenting techniques were helpful.

Disagree	0	0
Somewhat agree	1	1.8
Agree	17	30.4
Strongly Agree	38	67.9
Missing	0	0

I learned new ways to monitor my kids.

Disagree	0	0
Somewhat agree	2	3.6
Agree	22	39.3
Strongly Agree	32	57.1
Missing	0	0

The training on how to talk with my kids was helpful.

Disagree	0	0
Somewhat agree	0	0
Agree	18	32.1
Strongly Agree	38	67.9
Missing	0	0

I enjoyed learning about SODAS City.

Disagree	0	0
Somewhat agree	0	0
Agree	12	21.4
Strongly Agree	44	78.6
Missing	0	0

Attrition

Study participants not testing at a particular occasion were compared to those who did. Participants missing a testing occasion were examined for trends related to race,

gender, age, grade, and family structure in order to guard against a disproportionate level of missing data for any single participant characteristic. Between group comparisons revealed no statistical differences between those not testing and those completing testing at any of the post-test occasions. Testing occasion two was missing 25 (5%) cases, occasion three had 32 (6%) cases missing, and occasion four had 61 (12%) of the cases missing. Because the fourth testing occasion had the largest percentage of participants missing and was the post-test occasion used for this study, a comparative analysis is provided.

At the fourth testing occasion, which is the occasion most significant to this study, 61 (12%) of the participants did not test. This resulted in a final N of 453. There were 146 participants in the control group, 173 in the CAST group and 134 in the parent-CAST group. Similar to the baseline comparisons conducted, those missing the fourth testing occasion were compared by race, gender, age, grade, and family structure (Table 7). Table 7 reveals no between group differences by age, family structure, grade, or gender. However, it does reveal a statistically significant between group difference by race $F(2, 58) = 3.95, p = < .05$ for the participants who did not test. Post-hoc analysis reveals that the CAST and control differed by race at the fourth testing occasion ($MDIFF = .65, p < .05$). However, the use of ANOVA in an unequal group comparison, with a small sample size, increases the risk of type I errors.

Based on the above findings, a between study group one-way ANOVA was conducted on race for test completers at the fourth testing occasion. Results reveal no statistical differences between the three groups on race $F(2, 450) = .32, p = .73$. Therefore it can safely be assumed that the sample remains protected from the effects of

participants not testing at an occasion. These results support the assumption that between group equivalences were maintained and the study remained protected from internal sampling threats to the validity of the study.

Table 7 Comparison of study participants missing the fourth testing occasion

	Control		CAST		Parent-CAST				
	n=17		n=17		n=27				
GENDER^a	n=17		n=17		n=27		χ^2		
Male	58.5 %		64.7 %		40.7 %		2.76		ns
Female	41.2 %		35.3 %		59.3 %				
	M	SD	M	SD	M	SD	df	F	p
GRADE (years)	5.58	1.42	5.88	1.36	5.44	.89	2	.71	ns
AGE	10.76	1.39	11.06	1.39	10.85	.99	2	.26	ns
RACE	2.59	.80	1.94	.56	2.44	.75	2	3.95	.03
Family Structure	4.36	.84	3.92	1.31	4.13	1.45	2	.41	ns

Note: ^aChi-square analysis performed because this is a bivariate classification variable

Outcomes

The first hypothesis proposes that adolescents in the parent-CAST group will have greater protective factors than the CAST or control study groups. This hypothesis suggests that the cumulative affect of receiving parent interventions will result in the adolescents reporting greater protective factors (as defined in this study). Using ANCOVA on variables of interest, pretest scores were held constant and a between group analysis was conducted at the fourth testing occasion.

Questions related to the frequency of parent conversations about drugs and cigarette smoking were collected at the third testing occasion and were used as the pretest (covariate) to examine between group differences for these constructs (Table 8).

Modeling pre-test scores as covariates had several advantages. First, it permitted control of any baseline differences. Second, given the small variances found between the groups in the variables of interest, accounting for any baseline differences permitted for the comparison of relative change between groups over time. Controlling for baseline group differences and examining between group differences overtime was accomplished by ANCOVA statistical modeling.

Table 8 ANCOVA analysis of protective factors and substance use

	Control N=146		CAST N=173		Parent- CAST N= 134		df	F	p
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>			
Protective Factors									
Family									
Parents discuss alcohol	3.00 (.91)		3.14 (.88)		3.16 (.94)		2	.69	ns
Frequency of alcohol talk past 1 month	1.97 (.97)		2.22 (1.08)		2.38 (1.08)		2	3.09	.05 ¹
^a Frequency of cigarette talk past 1 month	2.07 (1.08)		2.45 (1.13)		2.52 (1.13)		2	4.22	.02 ³
^a Frequency of drug talk past 1 month	1.96 (1.03)		2.34 (1.08)		2.47 (1.09)		2	4.34	.01 ³
Rule against alcohol	2.91 (.28)		2.92 (.27)		2.93 (.25)		2	.14	ns
In trouble if drink alcohol	2.94 (.23)		2.98 (.15)		2.95 (.21)		2	1.12	ns
Peer Influence									
5 friends smoke	3.56 (.87)		3.49 (.93)		3.76 (.63)		2	3.57	.03 ⁴
5 friends drink	3.57 (.82)		3.76 (.67)		3.74 (.67)		2	2.66	ns
5 friends drunk	3.62 (.82)		3.72 (.68)		3.83 (.50)		2	3.22	.04 ¹
5 friend inhalant	3.86 (.40)		3.84 (.50)		3.89 (.39)		2	.46	ns

5 friends THC	3.68 (.71)	3.60 (.89)	3.75 (.64)	2	1.65	ns
5 friends crack	3.87 (.43)	3.91 (.39)	3.97 (.17)	2	.45	ns
Friends ask you to drink	2.91 (.31)	2.88 (.38)	2.92 (.30)	2	.57	ns
School						
Grades	3.57 (.76)	3.40 (.77)	3.53 (.82)	2	3.12	.05 ²
After H.S. Plans	3.01 (.28)	2.95 (.31)	2.97 (.27)	2	1.66	ns
Refusal skills						
Please friends	2.86 (.35)	2.87 (.34)	2.86 (.35)	2	.12	ns
Stop trouble	2.75 (.43)	2.88 (.32)	2.85 (.36)	2	5.45	.01 ^{2,(1)}
Keep troubled friends	2.87 (.34)	2.87 (.34)	2.89 (.31)	2	.25	ns
Hard to say no to alcohol	3.37 (.73)	3.38 (.75)	3.41 (.77)	2	.13	ns
Cognitive skills						
Problem solve	3.54 (.60)	3.68 (.51)	3.72 (.51)	2	4.32	.02 ³
One choice	2.91 (.28)	2.86 (.35)	2.82 (.39)	2	2.31	ns
Think of choices	3.86 (.84)	3.96 (.82)	4.05 (.84)	2	1.51	ns
Do things, do not think first	3.19 (.59)	3.23 (.60)	3.27 (.61)	2	.55	ns
Live here & now	3.34 (.76)	3.30 (.80)	3.30 (.80)	2	.08	ns
Knowledge						
Assertiveness	1.28 (.46)	1.47 (.50)	1.41 (.49)	2	5.74	.00 ²
Consequences	1.78 (.41)	1.78 (.41)	1.74 (.44)	2	.24	ns
Substance Use						
Entry Drug Use	9.79 (.93)	9.91 (.41)	10.00 (.00)	2	4.42	.01 ¹
Middle Risk Use	24.55 (1.33)	24.70 (1.21)	24.88 (.49)	2	.16	.05 ¹
High Risk Use	19.83 (1.40)	19.92 (.69)	19.99 (.09)	2	1.10	ns

Note: ^a Comparison at t₃ which is first time data collected on this variable. Post hoc analysis was conducted using a Bonferroni correction to control for multiple pair-wise comparisons. ¹ Significant difference between parent-CAST and control; ² significant difference between CAST and control; ³ significant difference between both intervention groups and control arm; ⁴ significant difference between parent-CAST and CAST intervention arms; ⁰ approaches significance. Greater scores represent improvement.

Table 8 summarizes the between group differences discovered at the fourth testing occasion while holding pretest scores constant. There was an overall between group difference on the frequency of alcohol related discussions between parents and adolescents $F(2, 450) = 3.09, p < .05$. Post hoc analysis revealed the parent-CAST group had a statistically significant greater amount of past month discussions between parents and adolescents about alcohol as compared to the control group ($MDIFF = -.30, p < .05$). The groups also differed on the frequency of cigarette smoking discussions $F(2, 436) = 4.22, p < .02$. Post hoc analysis revealed both the parent-CAST group ($MDIFF = -.31, p < .05$) and the CAST group ($MDIFF = -.31, p < .01$) reported significantly more frequent monthly parental discussions about cigarette use as compared to the control group. These between group differences held true for monthly discussions about drug use $F(2, 434) = 4.34, p < .01$. Post hoc analysis revealed both the parent-CAST group ($MDIFF = -.30, p < .01$) and CAST ($MDIFF = -.27, p < .05$) reported statistically significant greater monthly parental discussions about drug use as compared to the control group.

Overall, the parent-CAST group had a greater penetration of parental discussions with their children to include more frequent monthly discussions about alcohol. Both intervention groups had more frequent parent-child discussions about cigarette and drug use, but the parent group had a larger mean reflecting a proportionate greater number of discussions than CAST group. It would appear that the parent-CAST group had the benefit of more parent-child discussions surrounding alcohol, with the CAST intervention falling between the parent and control groups.

Peer group influences were examined by asking participants about the number of friends who use various substances. There was a significant between group difference

found in the number of friends who smoke cigarettes $F(2, 450) = 3.57, p < .03$. Post hoc analysis revealed that the parent-CAST group was statistically less likely to have friends who smoke than the CAST group ($MDIFF = -.24, p < .05$) who proportionally were more likely to have peers smoke than either the control or the parent-CAST group. There were also between group differences on the number of friends who have been drunk $F(2, 450) = 3.21, p < .04$. The parent-CAST group was statistically less likely to report having friends who had been drunk as compared to the control group ($MDIFF = -.21, p < .05$).

Although the aforementioned discussion covers two reported statistical differences between the parent group and at least one of the other study groups on peer influences, it should be noted that on all but one of the seven peer influence measures the parent-CAST group had a greater mean. This suggests that proportionally there are far fewer negative peer influences in the parent-CAST group. In total this supports the notion that the parent group had a less 'risky' peer group.

Although it is very difficult to capture the relationship between school and adolescents using proxy variables, grades are most often used. School grades have been found to be related to adolescent substance use and were used in this study as a proxy for school bonding. There was a between group difference found $F(2, 450) = 3.12, p < .05$. Post hoc analysis reveals the control group had statistically better grades than the CAST group ($MDIFF = .263, p < .01$). There were no differences between groups on study participants plans after school. This finding may suggest that the level of substance use in the control group (discussed later) has not yet affected their school performance.

A statistically significant between group difference was found in assertive knowledge $F(2, 450) = 5.74, p < .001$. Post hoc analysis reveals that the CAST only

group had statistically better knowledge about assertiveness than the control (MDIFF = -.19, $p < .01$) with the parent-CAST group being just outside of significance (MDIFF = -.12, $p < .10$). Groups did not differ in the level of knowledge about consequences.

Refusal skills included a range of questions designed to examine a participant's skill set related to putting knowledge and attitudes in to practice. This represents assertive skill and efficacy. This construct attempts to capture the willingness of participants to act assertively. There was a between group difference found in whether adolescents would assert themselves with peers $F(2, 450) = 5.45$, $p < .01$. Post hoc analysis revealed that when asked about the ability to assert themselves with peers that are "getting in trouble," only the CAST group was statistically more willing do this than the control group (MDIFF = -.14, $p < .01$), with the parent-CAST group approaching a significant difference from the control (MDIFF = -.09, $p < .08$). This may suggest that the parent-CAST group is more likely to utilize self-protection by removing themselves from risky peers, where as the CAST group may attempt to influence participants as an advocate and engage in peer conflicts when peers are "getting in trouble."

An examination of cognitive skills revealed between group differences on the amount of time spent problem solving $F(2, 450) = 4.32$, $p < .01$. This skill is important when trying to reduce impulsive and avoidant behavior that contribute to poor decision making. Post hoc analysis revealed that both the parent-CAST (MDIFF = -.17, $p < .05$) and CAST groups (MDIFF = .17, $p < .05$) differed from the control group by reporting that they spend more time problem solving. There were no other between group differences.

In summary, the parent-CAST group adolescents were least likely to have peers that were abusing substances and more likely to have discussed cigarettes, alcohol, and drugs with their parents within the past 30 days. In contrast, the control group was more likely to have peers who were using substances and had fewer cigarette, alcohol, and drug conversations with their parents. The CAST group fell in between the parent-CAST and control groups in terms of peer group risk. The CAST group was statistically more likely to act assertively with troublesome friends as compared to the control group, with the parent-CAST group approaching a significant difference from the control group. CAST group adolescents were statistically more knowledgeable about assertiveness than the control group, with the parent arm having a mean in between the two.

The evidence suggests that the null hypothesis can be rejected. From the beginning of the study to the fourth testing occasion spanning approximately 2 years, the parent group is benefiting from greater protective circumstances, with the CAST group receiving the next best benefit, and the control group being at greater risk for substance use.

The second hypothesis posits that adolescents in the parent-CAST group will show additional improvement in protective factors following the face-to-face parent booster intervention. This hypothesis consisted of a within group analysis of the parent arm. This hypothesis has two implicit implications. First, is that the face-to-face booster session, by the nature of its approach, will improve family protective factors for the parent arm. Second, the face-to-face booster will encourage parental reinforcement of skills adolescents learned and increase the effectiveness of the CAST intervention.

All parents were sent a parent video, and 64 received the face-to-face parent booster. Two groups were created: parents who received both the video and face-to-face booster, and everyone else in the parent study arm. A t-test was then conducted at the third and fourth testing occasions on all protective factors. The third testing occasion included the effects of the video intervention, and the fourth testing occasion captured the effects of the face-to-face parent booster. The results revealed no statistical differences between the two groups at either testing occasion on protective factors.

Several factors may have influenced these findings. First, there may not have been enough time between the face-to-face parent booster and the next testing occasion for the impact of the training to vector through the parents to the adolescents. Second, the lack of statistical significance may be the result of a ceiling effect in the survey. The parent group participants are already at the top portion of possible responses making it difficult for any additional improvement to be quantitatively captured by this survey. Third, the fourth testing occasion occurred after the summer school break when youths have more unsupervised time, so that merely maintaining gains received between the third testing occasion and the fourth testing occasion is helpful. A final possibility for the lack of any additional demonstrated statistical improvement is that a single 2-4 hour face-to-face parent booster, following a video, is not quantitatively any better than a well designed video intervention.

Each parent intervention had unique advantages and disadvantages. The video is easily distributed, convenient, could be shared with friends and children, is less threatening, and more cost effective than face-to-face interventions. Face-to-face training, however, allows for deeper consideration for dealing with differential participant

idiosyncrasies, real time behavioral intervention, and permits for observable treatment effects. Either way, in this instance it did not appear to have any overt additional short-term effect on protective factors.

The third hypothesis implicitly suggests that the culmination of positive changes in the parent-CAST group will be revealed through a lower rate of adolescent substance use as compared to the CAST or the control group. Using the same statistical methods (ANCOVA), pretest scores were held constant and a between group analysis was conducted at the fourth testing occasion (Table 8).

An examination of entry drug use revealed a statistically significant between group difference $F(2, 450) = 4.4, P < .01$. Post hoc analysis revealed the parent-CAST group was statistically less likely to have used entry drugs (smoke) than the control group ($MDIFF = -.21, p < .01$). The CAST group had a mean entry drug use between the parent-CAST and control groups. The groups also differed on middle risk drug use $F(2, 450) = 4.42, p < .05$. Post hoc analysis revealed the parent-CAST group was statistically less likely to have used middle risk drugs (alcohol and marijuana) than was the control group ($MDIFF = -.32, p < .04$). Once again, the CAST arm had a mean that fell between the parent-CAST and control groups. There were no between group statistical differences on high risk drugs.

The substance use differences noted above are consistent with the findings discussed earlier about the relative between group differences in protective factors. This leaves a final and crucial question: how much intervention is required to make a difference?

The final hypothesis examined the relationship between the dose of training received by parents and the level of adolescent substance use behavior (within group analysis). Parent training dose was calculated using a composite score that included ratings of parent participation during the face-to-face-training, whether the parent-child workbook was returned, and the rating of training fidelity. These individual variables were added together creating the "dose variable."

Using the parent-CAST group only, an aggregate substance use score consisting of entry drug use, middle drug risk use, and high drug risk substance use was regressed on parent dose. The results showed no statistically significant relationship between parent training dose and substance use $F(1, 131) = .155, p > .70$. However, a somewhat confounding result was a beta weight of $-.034$. This would suggest an inverse relationship between parent training and adolescent substance use. As parent-training dose increased so did adolescent substance use. Although not statistically significant the direction of the beta weight warranted an exploratory effort to further clarify this finding.

In order to further assess what has influenced parent group outcomes, the number of CAST sessions completed was regressed on overall substance use and was found to be highly significant $F(1, 125) = 14.08, p < .001$, accounting for 10% of the variance found in substance use with a beta weight of $.319$. This finding suggests that for every increased unit change in the number of CAST sessions completed there are $.32$ units of positive change in substance use. Finally, these findings were used to build a model whereby CAST dose, parent dose, and the multiplicative term of CAST dose x's parent dose were modeled.

Using forced entry multiple linear regression for the parent-CAST group, the number of CAST sessions completed (from 0-10), parent dose, a curvilinear term, and an interaction term (parent dose x's cast sessions) was regressed on overall substance use (table 9). In order control for multicollinearity confounds that can occur when creating interactions from terms already in the regression model, the data was first centered (Aiken & West, 1996), then CAST and parent dose were entered in to the regression. CAST and parent dose was then squared providing a curvilinear term, and the interaction was created from the squared values. This method allowed for the investigation of linear, curvilinear, and interaction affects of predictors on adolescent substance use.

Table 9 Regression predicting adolescent substance use by training dose

Variable	B	SE B	β	t	p
Parent Dose	.013	.008	.228	1.58	.12
CAST Dose	1.25	.177	3.77	7.56	.00
Parent Dose ²	-.024	.002	-.263	-1.80	.073
CAST Dose ²	.142	.021	3.61	6.63	.00
Cast ² x Parent ²	-.086	.005	-.186	-1.57	.12

Note: Adjusted $R^2 = .37$: ² represents the squared value

The overall model was significant $F(5, 125) = 15.56$, $p < .001$ and accounted for 37% of the variance found in the adolescents assigned to the parent-CAST group. Table 9 presents the findings for the variables regressed on substance use. This reveals that there is not a significant interaction effect, but there is a significant curvilinear relationship between CAST dose and substance use.

Based on the lack of a significant interaction affect, the interaction term was removed and the centered dose variables and the curvilinear terms, were regressed on substance use. The model was significant $F(3, 125) = 22.87, p < .000$ with an adjust R^2 of .34. Again, only the CAST dose and CAST dose curvilinear term were significant. This finding confirms a curvilinear relationship between CAST dose and substance use.

Finally, CAST dose and the CAST dose curvilinear term was regressed on the aggregate substance use score. The model was significant $F(2, 125) = 34.37, p < .001$ with an adjust R^2 of .34. However, in order to further examine the point at which the CAST dose affects adolescent substance use, differing values of X were placed in regression equation and plotted (Aiken & West, 1996) (Figure 1).

Figure 1 Effect of CAST dose on substance use

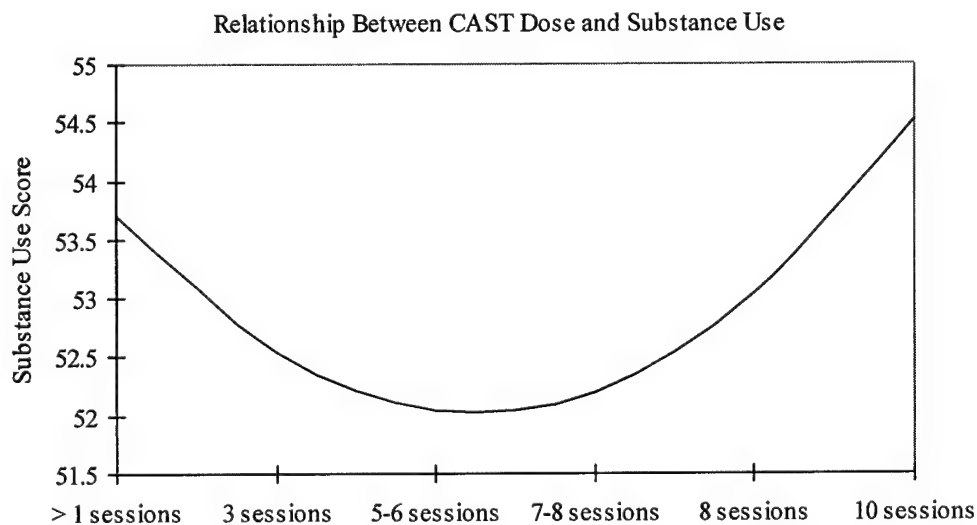


Figure 1 represents substance use on the Y axis and the number of CAST sessions on the X axis. The data has been coded so that greater numbers will always represent improvement. Therefore, as participants enter the sixth to seventh CAST session their substance use is predicted to decline (line goes up). However, why would there be

increases in substance use until that point? Given that the CAST intervention occurred over a period of several months (roughly two months) it is unlikely due to participant maturity. Participants missing (dropout) and completing a testing occasion were examined at every testing occasion. The group comparisons revealed that participants in each study group did not differ on any demographic detail examined. This finding makes it unlikely that decreases in substance use were an artifact of self-selection bias. There may be many confounding factors that are not accounted for in this study. However, the initial increase in substance use showed in the graph may well represent a typical trend of substance use escalation found in young adolescents.

Specifically, the fourth null hypothesis cannot be rejected. Parent training dose did not, in and of itself, seem to reduce substance use in this study. However, when examining the outcomes between the groups, the parent-CAST group had lower rates of substance use and a greater proportion of protective factors than either the CAST only or control group. There is evidence that CAST training is consistent with lower rates of adolescent substance use, and that the adolescents in the parent-CAST group received an additional benefit not received by the other groups.

CHAPTER 4

Discussion

The self-reports of adolescents over the past two years have provided a glimpse into possible advantages of using multimedia interactive technologies coupled with conventional parent group training (direct service) to prevent adolescent substance use. Computer Assisted Skills Training (CAST) for youths, video and face-to-face interventions for parents were used to provide science-based interventions. This study examined the effect that these methods had on the substance use risk and behavior of young adolescents.

As discussed earlier in this dissertation, substance use in adolescence has a negative influence on their social developmental trajectory and health. This study's design controlled for age, income, and race. These controls, along with the three group experimental design, permitted different levels and types of intervention to be examined in relationship to a youth's environment, their individual skills, and ultimately their substance use behavior.

Results from this study support the value of utilizing computer technologies coupled with parent training in order to reduce adolescent substance use. The data revealed that the parent-CAST group used significantly less entry and middle level drugs as compared to the control group. Although the CAST group did not statistically differ on entry and middle risk drug use from the control group, mean substance use for the CAST group fell in between the parent-CAST and control group. These findings support a differential affect on adolescent substance use based on type of intervention. There was

also a between group difference in environmental factors and individual skills related to substance use risk.

The first of the environmental influences were substance use related discussions between parents and their adolescent children. The parent-CAST group had statistically more frequent monthly discussions about cigarette, alcohol, and drug use as compared to the control group. The CAST group had statistically more frequent monthly discussions about cigarette and drug use as compared to the control group. These findings suggest that the parent-CAST group benefited from relatively greater overall parental discussions about substance use, with the CAST group receiving the next greatest benefit.

The second environmental condition studied was peer influences. Adolescents reported the number of their peers who smoke, drink, been drunk, or used drugs. The results reveal the parent-CAST group had significantly fewer friends who smoke as compared to the CAST intervention. The parent-CAST group also had statistically fewer friends who had been drunk as compared to the control group. These findings suggest that the parent-CAST group had fewer peer group affiliations that were substance users.

The third environmental conditions studied were school affiliations. Data was collected from adolescents related to their intentions after high school and their school grades. The control group had statistically better grades as compared to the CAST group. The control group and parent-CAST group had similar grades. This would suggest that the impact of increased substance use behavior discussed above, had not yet affected school performance.

In addition to trying to influence environmental factors, adolescents received training related to individual level skills related to drug resistance. Adolescents first

received training on individual refusal skills. Refusal skills were measured by asking adolescents about their willingness to please friends, act contrary to friends getting in trouble, desire to keep troubled friends, and how hard it is to say no to alcohol. The results reveal that the CAST group was statistically more likely to act contrary to friends that were headed towards trouble as compared to the control group. However, the parent-CAST group approached a statistically improved result as compared to the control. These findings suggest that the intervention groups had improved refusal skills as compared to the control group.

The second individual skill for adolescents was related to cognitive skills. These skills were measured by asking adolescents about their ability to problem solve, think of choices, and resist impulsivity. Both the parent-CAST and CAST groups were statistically more likely to use problem solving strategies as compared to the control group. This suggests that the intervention groups benefited from a greater willingness to think about how to solve a problem demonstrating improved problem solving strategies.

The third individual factor was knowledge related to assertiveness and consequences. The CAST group had statistically more knowledge related to assertive behavior as compared to the control group. The parent-CAST group had a mean close to the CAST group, but did not reach a statistically different relationship with the control group. This suggests an intervention effect related to improved assertive knowledge.

Important findings in this study were related to intervention dose. Table 9 revealed a significant curvilinear relationship between the number of CAST sessions completed and substance use among the parent-CAST group. Additional analysis revealed that adolescents needed to complete between six and seven sessions in order to

benefit from the intervention. The dose measure analysis clarified the relationship between the number of CAST sessions required to influence substance use behavior. The CAST intervention was provided over two months. This reduced the possibility that the initial increase in substance use was the result of participant maturity. The date that each participant began and ended the CAST intervention was not collected making it difficult to control for that time.

The parent dose, which only captured the dose of face-to-face intervention that parents received, was not significant. Because it was not possible to distinguish between parents who watched the video and those who did not, it was assumed that all parents watched the video. This assumption meant that the dose measure was actually a measure of the face-to-face intervention alone. Different from the CAST training, the parent intervention is attempting to influence the adolescents through interventions provided to the parents. The lack of a significant parent effect on the face-to-face parent intervention may be the result of not enough time having passed between the intervention and the next testing occasion for the adolescents (2-4 months). However, given the net effects found at the fourth testing occasion there is some evidence that a culturally sensitive, science and computer-based adolescent intervention, coupled with a relatively low level of parent training, may effectively reduce adolescent substance use.

The overall study design is complex and has many strengths, but it is not without its limitations. For the purpose of clarity, study limitations have been divided into three broad categories: attrition, data collection and measures, and intervention continuity.

This study benefited from a remarkably low attrition rate of 12%. The low attrition rate protected the study from sampling bias over time. However, the low

attrition rate was achieved by having research assistants make additional calls to children in order to track them. The telephone calls were assumed to be evenly distributed among the three groups, thereby reducing the possibility that any single group was uniquely affected. However, the possible introduction of any bias affecting either adolescent behavior or their survey responses cannot be completely ruled out.

It is always possible that those missing a testing occasion differed from those testing in some unique characteristic. Table 7 revealed a between group difference among those missing at the fourth testing occasion and those that tested. However, that analysis had several weaknesses including an unbalanced ANOVA with a small N. Further analysis on the test completers revealed no between group differences suggesting that the study remained protected from internal threats of validity due to self-selection bias.

There were also some limitations related data collection and measures. First, there were some variations in data collection methods. Most children completed their surveys at study sites, while a research assistant called others on the phone. Completing the surveys over the phone was more convenient for some of the adolescents and reduced the amount of missing data at any single testing occasion. Again, it is believed that the number of adolescents completing the survey by telephone was evenly distributed among groups, reducing possible bias, although that may not be the case. The second limitation was discussed earlier and is related to the measurement of parent video dose. It was impossible to confirm who did not watch the video; therefore the entire parent-child group was assumed to have watched it. The third limitation was related to the survey. Adolescents were 11 years old at the start of the study and already had lower risk scores

(greater scale numbers); the ceiling effects of the instrument may have limited the detection of improvements on outcomes. Finally, it is possible a response bias was introduced. This suggests that as adolescents received greater intervention their responses to survey questions were favorably biased due to researcher influences.

The final limitations of this study were related to implementation of some of the interventions. First, it should be noted that the CAST and parent video were specifically designed to be flexible and conveniently administered. However, this made it difficult to know the exact conditions under which the CAST and video sessions were completed. Some children completed session on home computers while others did not. We do know that the vast majority of the CAST sessions were completed at the study sites. The second limitation in this area was related to the parent training. It is possible that the adolescents of parents who attended the training may be more or less likely to be a substance user than adolescents in the CAST only and control group. Therefore, the parents attending the parent training may have represented a biased sub-group sample of parents. Finally, the face-to-face parent training materials were not transcribed into Spanish. All participants spoke English, however, some of the parents did not have an optimal command of the English language. If a Spanish speaking parent's English was not optimal, a translator was provided during training. Future analysis of the face-to-face intervention may be influenced by this limitation. It should be noted that the parent video as well the CAST interventions were provided in both English and Spanish.

This study has many implications for social work practice. First, where science-based interventions exist for the Social Work practitioner, new technologies and methods may provide opportunities for reducing barriers that have previously hampered reaching

underserved populations. The use of technology remains foreign to many people in this country, but children today use the internet to access places, spaces, and information that would otherwise be out of their reach. Social workers have long been trained to 'start where the client is.' If the clients are adolescents, they are often on the computer. Second, future social work prevention programs need to be creative in order to overcome barriers to reaching adolescents, but also their parents. Ultimately, the peer relationships created during adolescence are a matter of choice. To the degree that a parent and adolescent intervention encourages relationships that are substance use resistant, so the adolescent will be less likely to become a substance user.

The ability of social workers to have future prevention programs accepted in this country will be based on their ability to reduce barriers, use science-based interventions, and restrain costs. Social work's long tradition of understanding and studying the person-in-environment has resulted in adapting methods to new problems. Social work is again in a unique position to advance practice methods beyond the confines of the individual and agency, towards unobtrusive and accessible primary prevention programs by using the technologies of today.

Future research is needed to further clarify the relationship between CAST training and different types of parent training. Furthermore, there were relatively low variances found between adolescents in this study and these youth are only now entering a period in which they will be at greatest risk for substance use. Future research examining the effectiveness of these interventions should follow a cohort through longer periods of development in order to observe changes through greater risk periods. This would increase the variances and permit for additional subgroup analyses of age, gender,

and race. It is possible that multimedia interventions affect groups differently. In addition, following early adolescents to the latter stages of adolescence would clarify whether the positive changes noted in this study can be maintained overtime.

The past twenty years of substance use prevention research has provided support for several science-based interventions shown to reduce adolescent substance use. This study supports the use of multimedia methods for providing interventions to parents and early adolescents in order to reduce adolescent substance use.

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Appendix A: Timeline

STUDY TIMELINE FOR LARGER PROJECT

* Proposed dissertation research investigates parent training effects on child substance abuse independent of other study interventions and findings

Task	Baseline Data Collection	Child Intervention	Parent Intervention	Child Intervention	Parent Intervention	Child Intervention	Parent Intervention	Child Intervention	Parent Intervention
	PRETEST CHILDREN	COMPUTER ASSISTED SKILLS TRAINING	RETESIT CHILDREN	RETESIT CHILDREN	COMPUTER SKILLS TRAINING BOOSTER	PARENT LEARNING NEEDS ASSESSMENT TELEPHONE SURVEY*	FOUR-HOUR PARENT TRAINING*	RETEST CHILDREN*	
PARENT-CHILD INTERVENTION GROUP	•	•	•	•	•	•	•	•	•
CHILD-ONLY INTERVENTION GROUP	•	•	•	•	•	•	•	•	•
CONTROL GROUP	•	•	•	•	•	•	•	•	•
OCT-JAN 2001									
JAN-JUL 2001									
JAN-JUN 2002									
MAY-JUN 2002									
JUN-JUL 2002									
SEP-NOV 2002									

Appendix B: Parent Telephone Survey

Appendix B

Parent Telephone Survey

Suggested Telephone Introduction

"Hello I'm (insert your name) with the Columbia University SODAS City research project, that (insert child's name) is participating in. We are in the process of arranging a workshop for parents whose children are in the program. The workshop would be for **parents only** and will be designed to help you support your child's drug and alcohol free lifestyle. However, we need your help in making this training fun, informative, and convenient. We want to make sure that the training meets your needs as a parent. I would like to ask you a few short questions that will help us in our planning. Do you have a few minutes?"

1. Do you think that a parent workshop designed to help you keep your kids off drugs would be helpful?

Yes / No

Additional parent comments:

If parent says "YES", ask them "what type of information that would be helpful?"

If parent says "NO", ask "why is it you don't think it would be helpful?"

2. We realize that being a parent can be challenging and the last thing we want to do is burden you any further, what can we provide that would make it more likely you would attend the training?

Parent comment:

Specifically ask about:

- Day of the week: First choice _____; Second choice _____
- Time of day: First choice _____; Second Choice _____

- *Location (local club child is participating in or different facility)*
- *Transportation (How far could they travel?; Would our providing a car be helpful?; What about if we reimburse their travel expense?)*
- *Childcare*
- *Topics*

3. We want to make the training fun and rewarding. We had thought that providing small tokens of our appreciation would be a great way to thank parents for making an investment in their children. What types of gifts do you think people would most enjoy or appreciate? (circle all that apply)

Cash

Pizza and Movie rental

Toys for kids

Raffle

Clothing Gift Certificates

Food at training

Movie tickets

Food Certificates

Additional parent comments:

Suggested closing statement

We would like to thank you for your time. The information you provided will make a big difference in the training. Are there any final thoughts you have about the training?

Parent comments:

We look forward to seeing you at the training and will be sending a flyer out within the next few weeks with the time, location, and specifics of the training. Once again, thank you and have a good day/night.

Appendix C: Parent follow-up Feedback Post Card

Appendix C

Parent Name _____

1. Would a parent workshop that focused on ways to help you keep your children safe from drugs and alcohol be helpful to you? (YES) (NO)
2. This fun and informative workshop will take about one-half day (4 hours). Are you willing to attend? (YES) (NO)
3. The workshop will be held on a Saturday. What time on Saturday works best for you?
(9am) (10am) (11am) (12am) (1pm) (2pm) (3pm) (4pm) (5pm) (6pm)
4. If Saturdays will not work for you, what day and time is most convenient?
DAY _____ TIME _____
5. How much time advanced notice do you need in order to attend the training?
(1 week) (2 weeks) (3 weeks) (4 weeks) (1 month) (more than one month)

Please write in any additional comments you may have

Appendix D: Parent Dose Rating Scale

Appendix D

Parent Dose Rating Scale

The purpose of this scale is to rate the level of dose that each participant receives during the training. Each participant is given a single score ranging between 1 and 10. The larger the number the greater the parent's receipt of the both the material and the process. Below are *guidelines* for the participant evaluator to use in determining the level of training each parent received.

Score	Guidelines
0	Parent did not attend the training
1	Parent showed for the training however slept or was obviously uninterested through out.
2	Parent showed for the training, was distracted and mostly disengaged.
3	Parent showed for the training, remained isolated from others, and presented as distracted and uninvolved.
4	Parent showed for the training, talked to some parents, but continued to talk to others during the training with intermittent attention given to the program.
5	Parent showed for the training, talked to some parents, but during the training gave most of their attention to the program.
6	Parent showed for the training, talked to some parents, and presented as inquisitive, asking either presenters or other participants questions.
7	Parent showed for the training, actively participated in all training and exercises.
8	Parent showed for the training, actively participated and seemed interested, enthusiastic and willing to exchange ideas.
<hr/>	
<i>Completed Upon Return of Workbook</i>	
<hr/>	
0	Parent did not return the workbook
1	Parent returned the workbook, however it was only partially completed
2	Parent returned the workbook and was fully completed

Appendix E: Parent Training Manual

Appendix E



SODAS CITY PARENT TRAINING MANUAL

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About This Manual

This manual is designed to provide curricula for the SODAS City parent intervention. The goal of this manual is to provide trainers with guidance in relation to both the subject matter of the training and training methods that are consistent with adult learning. The training is not designed as a 'stand alone' adolescent substance abuse intervention. This training focuses on parents as an augmentation to individual level adolescent intervention.

The content areas contained in the manual are specifically targeted to impact familial characteristics consistent with adolescent substance abuse resistance. An additional goal is to train parents on the intervention received by their children in order to encourage parental reinforcement of their child's new behavior.

Acknowledgements

The parent training is one part of a five-year clinical trial funded by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). This study is conducted in collaboration with Columbia University and Intersystems Incorporated.

The parent training intervention is designed to augment the Stop Options Decide Act Self-praise (SODAS) program. The SODAS program is a computer-assisted skills training (CAST) program that provides adolescent children with the cognitive-behavioral skills needed to resist substance abuse behavior.

The overarching goal of the program is to target individual and family level factors that can teach and reinforce adolescent drug resistant skills, while reducing the influences of negative peer pressure.

INTRODUCTION

Importance of Parent Interventions

Parent interventions have a tremendous potential in the area of adolescent substance abuse prevention. Research shows that parent interventions that are targeted at a point where parental influences are high (prior to adolescence), have a greater impact on adolescent substance abuse behavior. It has also been shown that parents with less conflict with their children and who have clear, positive expectations of their children, have children that are less likely to become substance users.

Thus far studies that have provided parent interventions as a means of reducing adolescent substance abuse behavior have been shown to be effective. However, most of these studies are large, expensive and use complicated designs, which in turn reduces the transferability of the interventions to communities that could use them.

This intervention is designed to provide a brief (4 hours), one time parent intervention focusing on: 1) Reinforcement of child skills training; 2) Conflict resolution techniques; 3) Communication skills; 4) Positive role modeling; 5) Goal setting with children; 6) Consistent parental expectations of children; and 7) Child monitoring techniques.

Getting Started

TIME: 5 Minutes

PURPOSE: Provide introductions, help attendees feel comfortable, encourage participation.

FACILITATOR WILL:

1. Introduce himself/herself and the staff
2. Thank the parents for being willing to 'make an investment in their kids'
3. Housekeeping: time, breaks, food, and restrooms
4. Outline the goals of the training
 - Substance abuse information - SODAS overview - Importance of role models - Communication skills - Assertive behavior - Conflict resolution - Goal setting with kids - Parent monitoring techniques
 - Parent workbook - Parent survey - Closure
5. HOW TO:
 - Inform parents that THEY are experts and have a great deal to offer
 - The training will be conducted in small groups and will use role-plays
 - Reinforce the notion that everyone benefits from your thoughts, suggestions and opinions, participate freely.

Substance Abuse Overview

TIME: 15 Minutes

PURPOSE: Provide an overview about what is known about adolescent substance abuse behavior and why we are focusing on specific topics.

FACILITATOR WILL:

1. Encourage parents to brainstorm what they think contributes to adolescent substance abuse.
2. Use black board or dry-erase board to write down parent comments.
3. Write-down ALL parent comments and make positive remarks regarding their ideas.
4. Encourage comments around FAMILY, PEER, SCHOOL, AND INDIVIDUAL factors that contribute to adolescent substance abuse behavior.
5. Show slides that cover each topic area.
6. Check off each topic on the dry-erase board that parents covered.
7. Reinforce how much they know!!

Substance Abuse Information:

1. INDIVIDUAL:

1. Impulsivity
2. Low self-esteem
3. Prior substance use
4. General conduct problems
5. Pessimistic expectations about the future
6. Difficulty being assertive

2. PEER INFLUENCES:

1. Friends who are known to be using substances
2. Friends who are in trouble in the community
3. Large age differentials among peers

3. FAMILY INFLUENCES

1. Parent behavior
2. Long-term parent-child conflict
3. Poor communication
4. Parent rules about substance abuse
5. Parent monitoring of children

4. RELATIONSHIP BETWEEN SUBSTANCE ABUSE AND OTHER PROBLEMS

1. High-risk sexual behavior (sex, unprotected sex, unwanted sex)
2. Delinquency
3. Crime
 - a. Most adolescent crime between 3pm and 7pm
4. Unemployment
5. School Drop-out
6. Accidental death or injury

SODAS CITY OVERVIEW

TIME: 10 Minutes

PURPOSE: Provide parents with an introduction of SODAS City intervention children have completed.

FACILITATOR WILL:

1. Ask the parents how much they know about the SODAS intervention completed by their children.
2. Define SODAS (Stop, Options, Decide, Act, Self-Praise)
3. SODAS City is a computer-assisted skills training program
4. Outline the SODAS training
 - Think before acting (decision-making skills)
 - Communication
 - Assertiveness
 - Situation role-plays
 - Media influences
5. Encourage parents to ask their kids about the training.

Sodas City Overview

1. Stop, Options, Decide, Act, Self-praise (SODAS) is a computer assisted program designed to help youth make good decisions.
2. Our goal is to help them make good decisions about substance use, but these skills can be used in many parts of their lives.
3. The skills that your children learn that we are going to discuss today are about improving one's life by reducing bad decision making.
4. The skills include:
 - Thinking before acting (decision-making skills)
 - Good communication skills
 - Assertiveness techniques – which help people communicate their wishes forcefully, without being seen as aggressive
 - Situation role-plays where they can practice decision-making skills
 - Learning about media influences
5. Ask parents how many of them have discussed the training with their kids.
6. Encourage parents to discuss the training with their kids.
7. Break

SIGNIFICANCE OF ROLE MODELS

TIME: 15 minutes (include 10 min break)

PURPOSE: The goal is to expand parental thinking on the types and power of role models on their children. Facilitate parent brainstorming related to the influence of role modeling. Provide information supporting the importance of role models that are contrary to substance abuse.

FACILITATOR WILL:

1. Ask parents how they believe that role models influence their children
2. Use a black board or dry-erase board: write down all parent suggestions
3. Focus the discussions around several domains of modeling
 - Media
 - Schools
 - Community
 - Family/parents (VERY powerful)
 - Sibling
 - Peers
4. Show parents the slide show
5. Check off each way that the parents cited that role-models influence their children.
6. Reinforce parent involvement.
7. **BREAK (10 min)**

Significance of Role Models

1. Role models can be positive or negative

2. MEDIA:

- Often minority groups are portrayed negatively or not at all
- News about sports figures are often negative
- Alcohol advertisements often target youth
- Smoking advertisements often target youth

3. SCHOOLS:

- Is a powerful influence on your children?
- Do children have teachers that they respect?
- Do children have teachers they can talk to?
- Do Children feel safe at school?
- TEACHERS CAN BE ROLE MODELS IN SCHOOL.

4. COMMUNITY:

- Are there POSITIVE adults that your children respect?
- Do parents that your children know have a set of values that are consistent with yours?
- POSITIVE ADULTS CAN REPRESENT ACCESS TO POSITIVE ADULTS

5. FAMILY/PARENTS:

- VERY powerful influence on children.
- You have tremendous opportunity to make a difference
- It is far easier to deal with negative influences on your children early, as opposed to waiting until they have 'deep' relationships with negative influences.
- Do you behave in a way that you would like your child to behave?
- When your wrong are you able to admit that?
- Are you available for your children to talk to?

6. SIBLINGS:

- Are all children governed by the same set of rules?
- Do children point out your inconsistencies?
- How do you handle feedback from your children?

7. PEERS:

- Peers are a powerful influence on your children.
- Peer influences grow as your child goes through adolescence.
- Are the kids that your child plays with kids that you think are 'good kids'?
- Do you feel your child is able to resist 'following the crowd'?
- Are some friends that your child plays with in trouble?

COMMUNICATION

TIME: 30 minutes

PURPOSE: The goal is to provide parents with basic communication skills that can improve parent-child interaction and model good communication techniques for their children.

FACILATOR WILL:

1. Explain to the parents that this portion of the training will be conducted in small groups. The small group exercise is designed to allow each parent the opportunity to practice communication skills.
2. Divide the parents into groups of 4-6.
3. Begin the slide presentation.
4. At the end of the presentation have the groups further divide into pairs. Have one parent tell the other about themselves for 5 minutes
After 5 minutes have them reverse roles.
5. Facilitator will encourage the use of "I" statements, "active listening", attention to non-verbals, and reflection.
6. Solicit feedback from the groups about their experience with the exercise.

Tips for Effective Communication

1. Listening, Looking, and Leveling

2. LISTENING:

- Does not have to be passive
- Pay complete attention
- Don't think ahead of what you are going to say: Don't rehearse while the other is still talking
- Don't interrupt (Remain silent, while the other is still talking)
- Listen for feelings underneath the words
- Keep an open mind-don't judge immediately
- Encourage the speaker to continue-clarify what is being said.

EXAMPLE: "I heard you say you sometimes feel very confused, what do you mean by that?"

3. LOOKING:

- Pay attention to body language-both yours and the person you are communicating with
- Maintain eye contact
- Show your listening – Lean forward, say things like "uh huh", "go on", "that sounds good", "yes, I see what you mean."
- Clarify what you heard the person say: "What I heard you say was"

4. Being on the LEVEL:

- Be honest in what you say
- Speak for yourself – Use "I" statements instead of "you"
- Deal with other person's feelings – Don't try to change their feelings
- Reflect Person's feelings – "It sounds as if your feeling.....". Or "you sound.....?"

Communication During Stressful Times With Kids

1. TALK LESS AND LISTEN MORE

- Don't anticipate what your child is going to say
- Don't assume you know what they are going through

2. KNOW WHEN TO TALK

- No one likes to talk when hungry, tired, worried or busy
- Bedtimes are often a good time to talk
- Kids are not always open to telling you what's on their mind, you to "hang out" with them a while
 - Spend time with them at lunch, dinner, during chores, etc.
- Sometimes a planned meeting can help to structure a time when problems come up.

3. TALK IT OUT

- You may have to directly decide who will speak first and for how long
- Relate to each other first – Resolve issues second
 - Feeling understood goes a long way to reducing tension
- Don't apologize or offer an explanation or excuse UNTIL you have shown you appreciate your family members feelings
- Don't blame or attack
 - It is rare that there is only one person at fault
- Focus on ONE problem at a time
- If the discussion is not going well, STOP. Make an agreement to discuss it again at another time within the next 24 hours.

ASSERTIVENESS SKILLS

TIME: 15 Minutes (include a 10 min break)

PURPOSE: The goal is to familiarize parents with the assertive skills that both their children have learned and that they can use to improve their ability to reach their desired outcome in a particular exchange.

FACILITATOR WILL:

1. Explain that assertiveness is but another communication skill.
2. Provide parents with an understanding of the importance of assertiveness skills as a tool that children can use to refuse peer pressure.
3. Go to slide presentation on the subject.
4. Using the group dyads (previously arranged), have parents practice using the assertive script.
5. Ask parents to share how their experience during the exercise.
6. **BREAK (10 min)**

Assertiveness

1. DEFINITION:

- It is NOT sharing your thoughts, feelings, and beliefs ahead of others, or **blaming** others for you thoughts, feelings, or beliefs.
- It is the ability to express your thoughts, feelings, beliefs and needs, openly and honestly.

2. BASIC ASSERTIVE SCRIPT:

- When you (come home late: state the facts)
- I feel (scared, worried: state feelings)
- I would like (you to abide by the time we agreed on) in this way we will be able to work together, because then (I won't worry about your safety, and you won't have to worry about restriction: benefits to both).

FAMILY CONFLICT RESOLUTION TECHNIQUES

TIME: 30 Minutes

PURPOSE: The goal of this session is to provide basic conflict resolution techniques to parents.

FACILATOR WILL:

1. Ask parents if they have ever had a conflict or disagreement with their child.
2. Ask parents how they resolved the conflict?
3. Transition to slide presentation on conflict?
4. Connect conflict resolution with communication and assertiveness.

Managing Family Conflicts

1. Conflict within families is normal, how we deal with it is what is important
2. Conflict differs from disagreement.
 - Disagreement is usually restrained and fairly calm, conflict is often unresolved and angry.
3. Why does conflict occur?
 - Lack of communication – Failure to share ideas and feelings.
 - Value conflicts – 2 people have different attitudes, beliefs and expectations.
 - Different values and beliefs predispose 2 people to choose different goals and methods.
 - Lack of effective familial leadership.
 - Parents need to be in charge, but allow for participation of other members.
 - Adults in the same home must share the same goals.
 - Role expectations - Conflicts occur when family members disagree about who does what.
 - Low productivity – Family members do not fulfill tasks that allow the family to function (laundry, dinner, dishes, etc)
 - Change – This is big for kids as they mature – it pressures rules
 - Unresolved prior conflict – resentments and hostilities
4. Techniques for managing conflict:
 - Stay cool
 - Remember who is in charge – when parents get into power struggles with kids they lose their authority.
 - Establish a few ironclad rules and STICK TO THEM
 - Decide on 4 or 5 rules that reflect your personal values
EXAMPLE: No hitting, no T.V. until homework is done, no drinking or using drugs, etc.
 - Don't over negotiate on these rules or quibble over details
 - Focus on what really matters – Pick your battles

- Have realistic expectations
 - Do not expect your kids to act like adults; know age-appropriate behaviors.
- Establish an environment that encourages your kids to go along with your agenda.
 - Classic power struggles: Sleeping, eating, dressing – give choices and options
- Look for opportunities to agree with your child
- Spend positive time with your child.
 - Play a game with your child
 - Read together
 - Let your child TEACH YOU

- Be creative – If child won't clean his/her room, agree on a "room cleaning blitz". Set a timer for ten minutes and clean as much as possible within that time STOP!

- Make sure to praise your child for what they do!

5. Parents that are overly rigid or overly flexible have on-going conflicts with their children

- Those rules that are inflexible, make them clear, be consistent, make sure to praise compliance.
- Family rules where there is room to negotiate, include your kids in the decision-making.

6. Parenting is a balancing act between keeping kids safe and providing them structure, and giving them room to grow and take on responsibility.

Goal Setting and Rewarding Your Kids

TIME: 30 Minutes (include 10 min. break)

PURPOSE: The goal is to educate parents about the need to set goals with their children, how to reinforce goal achievement, and the importance of discussing consequences of their behavior.

FACILITATOR WILL:

1. Ask the parents if they believe that goal setting with their children is important.
2. Ask parents to discuss what types of goals they might set with their children.
3. Show parents the slide show discussing goal setting.
4. Suggest that goal setting allows for an expected outcome which can be either positively reinforced or not.
5. Behavior that is rewarded is much more likely to be repeated.
6. Have parents discuss allowed how they could set up goals with their children and reinforce their behavior.
7. **BREAK (10 minutes)**

Goal Setting and Rewarding Your Kids

1. Goal-Setting Definition – Goals are things we want to do or would like to see happen in the future.

2. Goals can be short-term or long-term. Most often goals for young adolescence begin as short-term goals.

3. Part of providing your children with structure, is providing them with direction.

- For example: If you want your child to call you at a certain time in the day so that you can make sure they are safe, you should discuss this with him or her.
- You should both agree on the time in which the call should occur.
- You should then both agree that if the call is made what will be the reward for calling.
 - i. Rewards are not always money, or gifts, they can be anything that your child finds important or desirable.
 - ii. When you first start the new behavior you have to reward it often.
 - iii. As the calls become routine, you can reduce the frequency of the reward: from every time you call, to when you call 3 days in a row, etc.

3. Success breeds success and rewarding behavior is important. It increases the likelihood that your child will comply with your agreed upon goals.

4. However, there are also consequences to not completing the task.

- iv. In the case of calling you, if they do not do so, you may subtract time from their curfew, take away privileges, etc.

5. Having clear rules about drug and alcohol use is VERY important.

Some children believe that parents expect them to drink or try drugs at some point. This is usually not the case but discuss it directly with children.

b. Some general goal setting techniques are:

- i. Decide together what you want to accomplish
- ii. Make sure that the goals are age appropriate
- iii. Determine a deadline for when you want it done
- iv. Make sure the goal is realistic (if your child is failing a course, it may not be possible to get a passing grade in 2 weeks, as opposed to seeing daily improvement in their homework)
- v. What obstacles may get in the way of accomplishing the goal
- vi. What knowledge or additional help is needed
- vii. What are the rewards for completing the goal
- viii. What are the consequences for not completing the goal
- ix. Develop a clear plan including, WHO, will do WHAT, WHEN
- x. Follow-up daily on what is being done to accomplish the goal

7. It is MOST IMPORTANT that you are consistent both in your expectations, rewards and consequences.

8. If you have not been consistent before, your child WILL test you. Be prepared and remember YOU ARE IN CHARGE!

Parent Monitoring and Family Rules

TIME: 30 Minutes

PURPOSE: The goal of this session is to reinforce the importance of parent monitoring and family rules, and to brainstorm monitoring and rule setting techniques.

FACILITATOR WILL:

1. Ask parents how important they believe that child monitoring and rule setting are to discouraging substance abuse.
2. Ask parents how they monitor their children.
3. Ask parents if others help them monitor their children.
4. Ask parents if they have rules about 'checking in.'
5. Present the slide show on the subject.
6. Brainstorm monitoring techniques, and write down their ideas on a dry erase board.

Parent Monitoring

1. What is Monitoring?

- a. **Where** your kids are
- b. **Who** they are with
- c. **What** kinds of things they have planned
- d. **How** they will get there and back again

2. Parent monitoring also means clarifying with your child your expectations and what they are to do (RULES).

3. Why is monitoring important?

- a. Monitoring by parents prevents a number of risky behaviors including sex, delinquency, substance abuse.
- b. Monitoring gives children the message that with increased privileges comes increased responsibility.

4. Children may complain that you don't trust them. Monitoring is not about mistrust, it is about love, care and concern.

5. TIPS:

- a. The earlier you start the easier it is
- b. Stay connected to your child's friends, school, and extra-curricular activities.
- c. Be a sounding board. Make it clear you are willing to listen.
- d. Build in time at night to check in with you child before bedtime (don't assume that this ritual has lost its importance)
- e. Model Behavior – what you say is not near as important as what you do!
- f. Monitor from a distance – Phone, neighbor, relatives, school programs, etc.

RULES

1. Remember, core family rules are important.
 - a. You may want your child to maintain good grades in school therefore you need rules about homework and you need to follow-up with their performance
 - b. You may want to create WRITTEN rules and post them somewhere that they are seen by all.
 - c. You want you child not to drink and do drugs you must make that CLEAR to him/her
 - d. You must MODEL the values and rules that you set.
2. Family rules are not designed to control you child, or create conflict.
3. Rules clarify a set of family values and provide clarity to all members of the family.
4. Rules let everyone know what is important
5. Rules can reduce tension.
6. Rules can increase accountability
7. Rules TIPS:
 - a. Try to get children to participate in the creation of the rules
 - b. EVERYONE must abide by the rules (includes parents)
 - c. Make sure the rules are reasonable
 - d. Expect some tension, adolescence can be a tough time
 - e. Discipline with love
 - f. Respect each family member as essential to family success

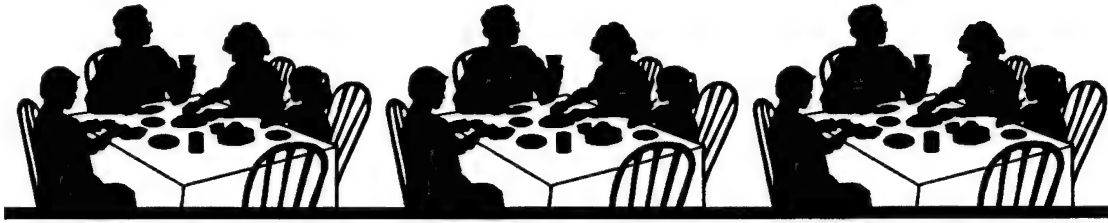
Parent-Child Workbook

TIME: 10 Minutes

PURPOSE: The parents are given a small workbook to complete at home with their children. Parents will need to be introduced to the workbook and how to mail the form in the back to us.

FACILITATOR WILL:

1. Introduce the workbook as an opportunity to talk to their children.
2. Explain the workbook has two exercises to complete with their children.
3. The back of the workbook has a one page form to complete and mail to the researchers.
4. After talking with their children, parents should complete the form and mail it back to the researchers with the self-addressed stamped envelope included.



Parent-Child Workbook



OVERVIEW

1. Find a good time to sit down with your child/children to talk. The purpose of the meeting is to open up communication.
2. You may want to have a snack available – often kids do best in a somewhat less formal setting
3. Remember the idea of the meeting is to talk (communicate) which means both listening to others and sharing your thoughts and feelings.
4. Both you and your child should have a piece of paper and pen or pencil available



WHAT ARE YOUR FAMILY RULES ABOUT KIDS AND ALCOHOL/DRUG USE

Instructions:

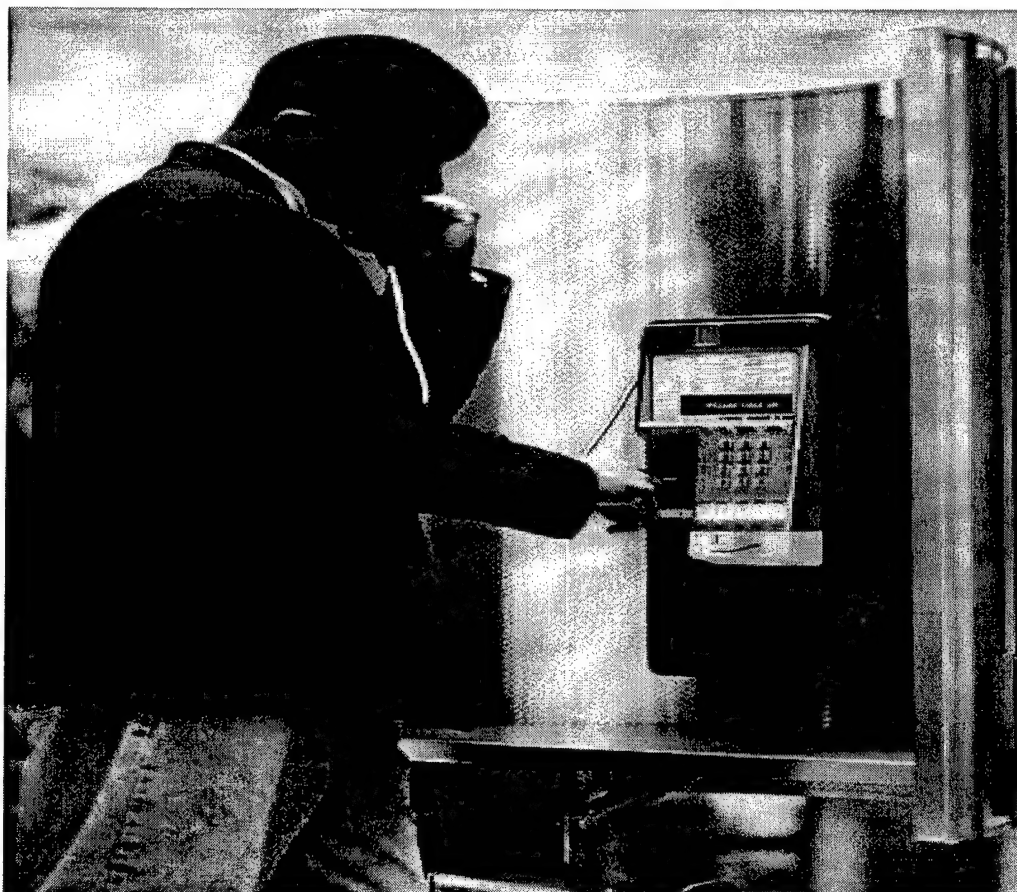
1. Ask your children to make a list of rules that they believe your family has about drugs and alcohol.
2. While your children are writing, make your own list. You may want to consider the rules below.
 - a. Kids don't serve alcohol to adults or guests
 - b. No one in the family drives with a person who has been drinking
 - c. Kids caught drinking will lose certain privileges
 - d. Kids don't have access to parents' alcohol
 - e. Kids don't drink until they are 21
 - f. Kids can only go to parties where adults are supervising
 - g. Drugs are dangerous and should never be used
 - h. Don't hang around 'friends' who are using alcohol or drugs
3. Compare your lists and discuss them honestly and directly.
4. Explain to your children that these rules are designed to keep them safe. THANK your child for being honest and willing to talk.



WHAT KIND OF PRESSURES DO YOU THINK YOUR CHILD IS EXPERIENCING?
WHAT DOES YOUR CHILD WORRY ABOUT MOST?

Instructions

1. Ask your children to make a list of things that they worry about.
2. While your children is writing, make your own list. You may want to consider the rules below.
 - a. Grades in school
 - b. Fitting in with other kids
 - c. Appearance
 - d. Family members or financial problems
 - e. Being cool and accepted by other kids
3. Compare your lists and discuss them honestly.
4. Discuss all of the concerns on the list and reassure your child. Praise your child for doing a good job and for being honest.



WHAT KIND OF PRESSURES DO YOU THINK YOUR CHILD IS EXPERIENCING?
WHAT DOES YOUR CHILD WORRY ABOUT MOST?

Instructions:

1. Ask your children to make a list of things that they worry about.
2. While your children is writing, make your own list. You may want to consider the rules below.
 - a. Grades in school
 - b. Fitting in with other kids
 - c. Appearance
 - d. Family members or financial problems
 - e. Being cool and accepted by other kids
3. Compare your lists and discuss them honestly.
4. Discuss all of the concerns on the list and reassure your child. Praise your child for doing a good job and for being honest.

Parent Survey and Certificates

TIME: 15 Minutes

PURPOSE: To solicit feedback from parents about the training.

FACILITATOR WILL:

1. Explain that the purpose of the feedback is to help us plan future training.
2. Ask each participant to take a moment and rate the training.
3. The feedback is anonymous and we want their honest opinion
4. Handout parent certificates of completion

Parent Survey

Parent Satisfaction Survey

In order to improve the training we need your feedback. Please answer the following questions.

CIRCLE the response that best represents how you feel about the training.

1. Did you find the training helpful?

Not helpful *Somewhat helpful* *helpful* *Very Helpful*

2. Today's training was 4 hours long, It should have been:

2 hours long *3 hours long* *4 hours was just right* *5 or more hours long*

3. The instructor was knowledgeable and did a good job conducting the training.

Disagree
agree *Somewhat agree* *Agree* *Strongly*

4. The topics discussed were relevant to my family.

Disagree *Somewhat agree* *Agree* *Strongly agree*

5. Talking with other parents was helpful.

Disagree *Somewhat agree* *Agree* *Strongly agree*

6. The Drug and Alcohol information provided during the training was helpful.

Disagree *Somewhat agree* *Agree* *Strongly agree*

7. The parenting techniques about discipline and consistency was helpful.

Disagree *Somewhat agree* *Agree* *Strongly agree*

8. I learned new ways to monitor my child's behavior.

Disagree *Somewhat agree* *Agree* *Strongly agree*

9. The training on how to talk to my child (communication) was helpful.

Disagree *Somewhat agree* *Agree* *Strongly agree*

10. I enjoyed learning about the SODAS training that my child has completed.

Disagree

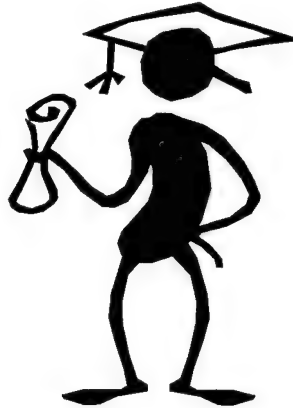
Somewhat agree

Agree

Strongly agree

11. Please provide us with any additional comments that you may have.

PARENT CERTIFICATES



SODAS CITY Certificate of Completion

is hereby granted to:

to certify that they have completed to satisfaction

Parent Skills Training (4 hours)

Granted: May 2002

***Steven P. Schinke, Ph.D. Professor
Columbia University***

CLOSURE

TIME: 5 Minutes

PURPOSE: To smoothly end the training and provide parents with closure.

FACILITATOR WILL:

1. Ask if there are any final questions.
2. Thank parents for coming and participating.
3. Remind parents about the importance of the workbook.
4. Encourage parents to use the skills that they have learned.

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Appendix F: Trainer Rating Scale

Appendix F

Fidelity of Training: Trainer Rating Scale

The purpose of the presenter rating scale is to measure the degree to which the presenter was able to impart the material in a systematic and consistent way. This scale ranges from 1 to 10 with the greater the number representing greater program fidelity. The following *guidelines* are provided to assist the evaluator in determining the presenter score.

Score	Guidelines
1	Presenter was disinterested, confused, and unfamiliar with the material being presented.
2	Presenter was disinterested and <u>at times</u> seemed confused or unfamiliar with the material being presented.
3	Presenter was generally disinterested, but seemed knowledgeable about the material being presented.
4	Presenter was interest and knowledgeable but <u>did not</u> successfully meet a majority of the goals of the training.
5	Presenter was interested, knowledgeable, <u>met</u> most goals.
6	Presenter was interested, knowledgeable, <u>met</u> most goals and seemed somewhat connected to the participants.
7	Presenter was interested, knowledgeable, and met most goals while engaging participants in an exchange of ideas.
8	Presenter was interested, knowledgeable, met most goals, engaged participants in an exchange of ideas and was able to facilitate participant enthusiasm.
9	Presenter was interested, knowledgeable, <u>met all</u> goals, engaged participants in an exchange of ideas and facilitated enthusiasm.
10	Presenter was interested, knowledgeable, met all goals, engaged participants in an exchange of ideas, and facilitated participant enthusiasm which in turn seemed to generate an atmosphere of support, collaboration, and unity.

Appendix G: Child Survey

SODAS CITY FOLLOW-UP 2

Please tell the truth. There are no right or wrong answers.

All Your Answers Are Private.

1. What grade are you in?

- ☐ 5th ☐ 6th ☐ 7th ☐ 8th ☐ 9th ☐ 10th
☐ 11th ☐ 12th ☐ Other _____

2. How old are you?

- ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13
☐ 14 ☐ 15 ☐ 16

3. What is your gender?

- ☐ Male ☐ Female

4. What race/ethnicity are you?

- ☐ White ☐ Black ☐ Hispanic ☐ Asian
☐ Other _____

5. Who do you live with MOST of the time? (pick only one)

- ☐ Mother & Father ☐ Mother & Stepfather
☐ Stepmother & Father ☐ Mother only
☐ Father only ☐ Grandparent(s)
☐ Foster parent(s) ☐ Other _____

6. What kind of grades do you get in school?

- ☐ Poor ☐ Not too good ☐ Good
☐ Very good ☐ Excellent

7. What do you think you'll do after high school?

- ☐ Go to college ☐ Go to community college ☐ Join the military
☐ Learn a trade ☐ Work full-time ☐ Work part-time
☐ Nothing ☐ Other _____

8. Do you think when someone has a problem, there's only one way to solve it?

- ☐ Yes ☐ No

9. Do you usually think carefully about your choices?

- ☐ Always ☐ Most of the time ☐ Sometimes ☐ Never ☐ Rarely

10. Do you prefer to live right now and ignore the future?

☐ Yes ☐ Sometimes ☐ No

11. Do you often do things without thinking first?

☐ Yes ☐ Sometimes ☐ No

12. When you have a problem, do you think about how to fix it?

☐ Yes ☐ Sometimes ☐ No

13. How much do people hurt themselves when they drink beer or other alcohol?

☐ Never ☐ Rarely ☐ Sometimes
☐ Most of the time ☐ Always

14. How many of your five closest friends smoke cigarettes?

☐ None ☐ 1 ☐ 2 ☐ 3 – 5

15. How many of your five closest friends drink beer or other alcohol?

☐ None ☐ 1 ☐ 2 ☐ 3 – 5

16. How many of your five closest friends have been drunk?

☐ None ☐ 1 ☐ 2 ☐ 3 – 5

17. How many of your five closest friends sniff glue, gas, or anything else to get them high?

☐ None ☐ 1 ☐ 2 ☐ 3 – 5

18. How many of your five closest friends smoke weed or marijuana?

☐ None ☐ 1 ☐ 2 ☐ 3 – 5

19. How many of your five closest friends use ecstasy crack, heroin, or other drugs?

☐ None ☐ 1 ☐ 2 ☐ 3 – 5

20. How many times have your parents talked to you about smoking cigarettes in the last MONTH?

☐ None ☐ 1-2 times ☐ 3-5 times ☐ 6 or more times

21. Do your parents talk to you about beer or alcohol?

☐ Yes ☐ No ☐ Sometimes ☐ I don't know ☐ N/A

22. How many times have your parents talked to you about alcohol in the last MONTH?

☐ None ☐ 1-2 times ☐ 3-5 times ☐ 6 or more times

- 23. How many times have your parents talked to you about drugs in the last MONTH?**
☐ None ☐ 1-2 times ☐ 3-5 times
☐ 6 or more times
- 24. Do your parents have rules against you drinking beer or liquor?**
☐ No ☐ Yes
- 25. Would you get in trouble if your parents caught you drinking beer or liquor?**
☐ Yes ☐ No
- 26. Have you ever taken beer or liquor from your family's home**
☐ Yes ☐ No
- 27. Have you ever taken beer or liquor from your family's home in the last MONTH?**
☐ Yes ☐ No
- 28. Consequences:**
☐ are bad things that happen to you
☐ result from something you do
☐ Don't know
- 29. Assertiveness is:**
☐ doing what your friends want you to do
☐ when you use force to get your way.
☐ saying what you want without hurting other people's feelings
☐ Don't know
- 30. How often do your friends ask you to drink beer or alcohol?**
☐ A lot ☐ Sometimes ☐ Never
- 31. How hard would it be for you to say "No" to a friend who offered you beer or alcohol?**
☐ Very hard ☐ Hard ☐ Easy ☐ Very Easy
- 32. If your friends were leading you into trouble, would you still hang around with them?**
☐ Yes ☐ No
- 33. If your friends were leading you into trouble, would you try to stop them from doing those activities?**
☐ Yes ☐ No
- 34. Do you like to please your friends, even if you don't think it's right?**
☐ Yes ☐ No.

35. How old were you when you first tried beer or liquor?

☐ Never tried beer or any kind of liquor.

☐ 7 or younger ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14
☐ 15 ☐ 16

36. Have you ever been drunk?

☐ Yes ☐ No

37. How often in the last YEAR have you used alcohol?

☐ None ☐ 1-2 times ☐ 3-9 times ☐ 10-19 times ☐ 20 or more times

38. How often in the last MONTH have you used alcohol?

☐ None ☐ 1-2 times ☐ 3-9 times ☐ 10-19 times ☐ 20 or more times

39. How often in the last WEEK have you used alcohol?

☐ None ☐ 1-2 times ☐ 3-9 times ☐ 10-19 times ☐ 20 or more times

40. Have you EVER smoked cigarettes?

☐ Yes ☐ No

41. How often in the last MONTH have you smoked cigarettes?

☐ None ☐ 1-2 times ☐ 3-9 times ☐ 10-19 times ☐ 20 or more times

42. How often in the last WEEK have you smoked cigarettes?

☐ None ☐ 1-2 times ☐ 3-5 times ☐ 6-9 times ☐ 10 or more times

43. Have you EVER smoked marijuana?

☐ Yes ☐ No

44. How often in the last MONTH have you smoked weed or marijuana?

☐ None ☐ 1-2 times ☐ 3-9 times ☐ 10-19 times ☐ 20 or more times

45. How often in the last WEEK have you smoked weed or marijuana?

☐ None ☐ 1-2 times ☐ 3-5 times ☐ 6-9 times ☐ 10 or more times

46. Have you EVER sniffed glue, gas, or anything else to get high?

☐ Yes ☐ No

47. How often in the last MONTH have you sniffed glue, gas or anything else to get high?

- ☐ None ☐ 1-2 times ☐ 3-9 times ☐ 10-19 times ☐ 20 or more times

48. How often in the last WEEK have you sniffed glue, gas, or anything else to get high?

- ☐ None ☐ 1-2 times ☐ 3-5 times ☐ 6-9 times ☐ 10 or more times

49. Have you ever used crack, heroin or other drugs?

- ☐ Yes ☐ No

50. How often in the last MONTH have you used crack, heroin or other drugs?

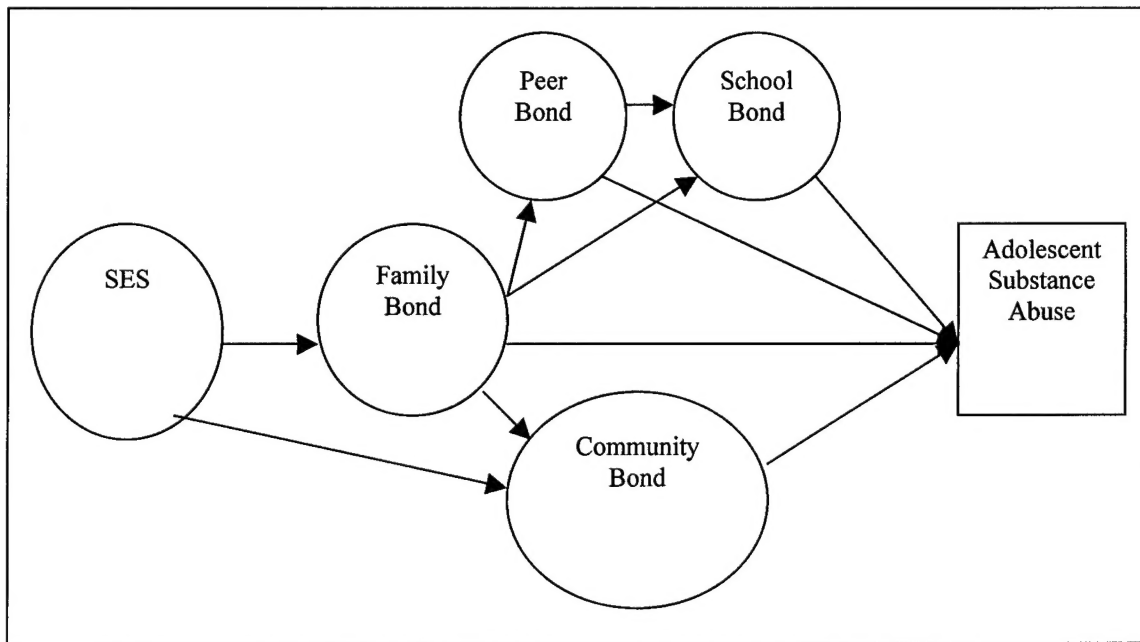
- ☐ None ☐ 1-2 times ☐ 3-9 times ☐ 10-19 times ☐ 20 or more times

51. How often in the last WEEK have you used crack, heroin or other drugs?

- ☐ None ☐ 1-2 times ☐ 3-5 times ☐ 6-9 times ☐ 10 or more times

Appendix H: Theoretical Model

Appendix H



Social Learning Theory

Social Control Theory

Family protection (parental rules/discussed with child)
 School Bond (grades, optimism)
 Peer Affiliations (peer behaviors)
 Self-efficacy/refusal (acting contrary substance abuse norms)
 Cognitive skills (stop, think, plan)
 Belief about alcohol (are there negative effects)
 Knowledge (define assertiveness and consequences)

Appendix I: Training Goals

Appendix I

Parent Training Goals

The purpose of the booster training session for parents has two primary goals. First, is to reinforce previous parental training received through the video intervention. The second goal is to provide additional scientifically based training to the parents that has the potential to further support their children's drug free lifestyle.

	Parent Training Goals
1.	Familiarize parents with the SODAS city training program and the rationale related to how it can help their child.
2.	Encourage parents to discuss SODAS with their children.
3.	Teach and role play basic conflict resolution techniques.
4.	Train parents on basic assertive skills, i.e. assertive scripts
5.	Provide parents with communication skills and practice different ways to engage their prepubescent/adolescent child.
6.	Provide parents with information related to the importance of children having positive role models.
7.	Teach parents how to work with their children on setting goals and the importance of rewarding goal achievement.
8.	Get parents to commit to talking with their children about their expectations related to drug and alcohol abuse.
9.	Get parents to make clear the consequences that the child will face in the home if they violate family rules.
10.	Reinforce the importance of parental/adult monitoring of their child.
11.	Engage parents and facilitate a partnership whereby the research staff can be 'accessible' to them for questions related to substance abuse prevention.
12.	Training sessions will use an informal, interactive methodology in order to facilitate a relaxed, comfortable, adult friendly atmosphere conducive to adult learning.